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The following articles on mental retardation are provided: translating research findings into classroom activity; camping programs; a measurement device for educable mentally retarded adolescents on their self-concept as a worker; an investigation of the Doman-Delacato Theory in a trainable program in the public schools; and problems of sex education for educable mental retardates. Abstracts of articles treat these topics: camping; using sight, sound, and symbol to develop learning abilities; a rehabilitative culture design for moderately retarded adolescent girls; remediation of psycholinguistic disabilities; milieu therapy for parents; developing teacher made instructional materials; language development instructional aids in the trainable program; centralized facilities; a program for public school integration; audiovisual instruction techniques; good practice conference for teachers; segregation; and parent and teacher communication. (WW)

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# TRANSLATING RESEARCH FINDINGS INTO CLASSROOM ACTION

by

Chester Loomis

"Do retardates learn more slowly and retain less well than normals, as has long been assumed?" is a question posed by Spiker (1966). In answer he states "The results of several recent investigations of the learning and retention abilities of retardates and normals have cast serious doubts about the general truth of that assumption."

To restate his hypothesis in a positive way, we could simply say: under certain conditions retarded children learn as rapidly and retain as much as normal children.

But of course as firing line practioners we know that this just doesn't seem to happen.

## Impediments to the Learning of Retarded Children

Perhaps we can visualize a retarded and a normal child in a "run a race, win a prize" situation. Spiker's evidence has shown that each child can get off the blocks equally fast, and run at the same speed. But upon which would you place your money? Again, why? Because evidence has also shown:

1. That in all likelihood the retarded child may not be paying attention when the gun sounds, and may never leave the blocks

2. When he does run, although he can run as fast, he may wander all over the track in response to the varying sights and sounds he encounters, or because he really doesn't know where the finish line is

3. That he remembers he has always failed to win before, so he is not motivated to spend much energy on a hopeless proposition.

To round out the picture somewhat, consider our two subjects sitting before a job simulation bench. Each has a number of labeled boxes in front of him and a huge pile of objects to place in the boxes according to the labels. The Go! signal is given, and the contest begins. But immediately our retarded subject has trouble. He has a number of objects for which he has no box; he wastes valuable time hunting for extra boxes, or trying to force objects into boxes where they do not belong.

Now, what do these two examples illustrate? Simply that our retarded pupil:

1. Has an attention deficit; he may not hear or respond to the starting signal

2. Is stimulus bound; he runs all over the track instead of concentrating on the long range goal

3. Is failure oriented, so he doesn't try; the prize doesn't seem worth the effort, and he won't win anyway.

4. Hasn't developed enough conceptual categories to enable him to cope with the many stimuli he receives--not enough boxes, not enough ideational organizers with which to classify and store his experiences for action or recall and future use as needed.

Let us consider one of Spiker's points--acquisition of information or knowledge or learning. Many studies have indicated no difference between educable retardates and normal children in learning criteria. Others have shown a difference in favor of the higher IQ children. The presumed variable is complexity. The simpler the task the nearer the learning curve of the retardate approaches that of the normal.

Spiker (1966), after examining many studies, concludes: "These studies appear to indicate that acquisition of knowledge (in the retarded) depends on the complexity of the task to be learned..."

## Suggested Classroom Practices

From that conclusion develops Classroom Practice Implication Number 1: Simplify. This disregarded rule is practiced more by teachers of the trainable than of the educable and practiced most by programed learning specialists.

On retention (or ability to recall what has been learned) among the retarded, Ellis (1963) states, regarding a Vergason (1964) experiment: "The results after 30 days suggest, as predicted, that when original learning is ensured, the defective's (IQ 60 to 75) retention is equal to that of the normal. This agrees neither with folklore nor with much current professional opinion." He further adds, three pages later, "Thus, from the standpoint described here, long term retention, a process seemingly closely related to the acquisition process, is viewed as 'Normal' in the retardate, i.e., equivalent to the process of the individual without CNS pathology."

H.B. Robinson and Nancy M. Robinson (1965) wholeheartedly support this position. They say, "Contrary to popular opinion, once a retarded subject has learned a response, he is about as likely to remember it as is a normal subject, provided, of course, that he has an equal opportunity to utilize the skills and information he has acquired (p. 330)."

Classroom Practice Implication Number 2: Plan for continued performance of what has been learned. Lance (1965) found that mentally retarded (60 to 80 IQ) subjects showed retention, "as measured by a decrease in the number of trials to relearn,...equivalent to the retention of normals."

And what was the consistent variable among these and other studies? Overlearning. To really finish the sentence previously quoted from Spiker we must add "...retention of knowledge is determined by the overlearning that takes place."

Vergason's (1964) finding was that retarded (IQ 60 to 75) and normal subjects did not differ on retention of an overlearned task after thirty days. Without overlearning, the retarded were decidedly inferior.

Classroom Implication Number 3: Teach for overlearning. This requires practice, about which something will be said later.

Prehm (1966) agrees with the premise that overlearning is of especial benefit to the retarded. He notes that "It has been shown that overlearning improved the retention performance of the retarded to a greater extent than it does of normal children." He also indicates that "The greater the difficulty of the task, the greater the reduction in retention loss as a result of overlearning."

Classroom Practice Implication Number 4: The harder the task the more effective overlearning is in retention of learning.

Goldstein and Seigle (1961) give us their statement of agreement with the above, and go on to give a practical example, as follows:

> Another pertinent result of research indicates that materials that are overlearned are retained longer than those learned only to familiarity. For example, in teaching a child a new word, the child may identify it correctly after the fifth presentation. The teacher may stop there and go on to a new word or she may go right on working with the same word with a number of presentations beyond the fifth. The probability that the child will remember the new word longer is enhanced by the few additional presentations of the word.

Returning to the notes of Prehm (1966) for a minute we further read:

> The literature also shows that distributed practice enhances the retardate's learning performance. This finding implies that the teacher should use several short teaching periods in the various areas of the curriculum during each school day. Rather than use the traditional approach to teaching arithmetic, for example, the teacher might spend only ten minutes introducing a particular concept. Later in the day she would review the concept and initiate a second ten minute practice period in the application of the concept. Still later she might have a third ten minute period for another brief review and the completion of assigned seatwork.
>
> Under this procedure the teacher would not expect complete mastery of a concept during the initial teaching period; mastery would be achieved only after a series of short practice sessions. This procedure would also allow the teacher to provide the contexts within which practice would occur This might have the effect of increasing the transferability of the concepts learned. It would also permit the teacher to introduce overlearning procedures in a more natural manner.

Classroom Practice Implication Number 5: Distribute practice.

Before we leave the subject of overlearning, or, to use words with which we may be more accustomed, repetition and practice, a note of caution should be sounded. Bigge (1964, pp. 296-297) sounds this most succinctly when he says

> ...repetition, per se...doing the same thing over and over again --does not teach. When we use the term practice, we refer to trials which have an experimental character; that is, trials in which the action is varied, even though slightly, and each time the learner asks himself either verbally or nonverbally, 'What does it feel like?' 'What did I do wrong?' or 'How can I do it

better?'

The implication inherent in that statement might be expressed this way: Classroom Practice Implication Number 6: Practice is repetition that is experimental and varied in character.

Additionally, making reference again to spaced practice, he says, "Virtually all of the research evidence seems to show that spaced practice is more efficacious than massed paactice."

There seems to be a measure of support for the position that retardates can learn some materials as rapidly as normal children, and that they remember overlearned materials as well.

To secure optimum learning and retention we should:

1. Simplify

2. Secure overlearning--provide for suitable and extended practice

3. Realize that the more complex the task, the more important and effective overlearning is

4. Distribute practice

5. Arrange practice so it will not be mere repetition

6. Insure continued performance of what has been learned.

But we still must admit, despite the proponents of the no deficit position, that mentally retarded children have a learning problem. To this we now return, and perhaps we can approach it through the words of Denny, and House and Zeaman.

Denny (1964) says:

> In view of the fact that what data there are do not support any sizable retention deficit, another possibility gains priority. Perhaps the retarded are poor performers because they are much poorer incidental learners than normals. Perhaps they learn little in the ordinary course of events, requiring special stimulation, guidance, and motivation to learn effectively.

This incidental learning hypothesis he mentions is seemingly closely related to a suggestion of Benoit's, in whose framework the retarded is seen as being stimulus bound, and tending to respond to the stimulus of the moment. In other words, as in our illustration, he may run wherever his attention is caught by some new sight, rather than respond consistently, as is required for learning, either to internal sets or external relevant clues.

House and Zeaman (1961) tell us that the problem lies not so much in inability to make discriminations but in inability to pay attention to relevant clues. The higher the mental age, the greater the number of clues observed, but the brighter learn to ignore those that have a very low probability of usefulness. The less intelligent are more equally attracted to all the clues they observe. They appear more distractible because they have not learned to ignore irrelevant dimensions.

This would seem to lead us toward a construct which might be stated thus: The retarded's apparent learning deficit may be the result of an attention deficit, and where attention is insured, learning may occur at a normal rate.

We would agree so far that the retarded has an attention deficit, but Scott (1966) states: "It has been shown that, once retarded children attend to the relevant features of a discrimination, they learn at the same rate as normal children."

He further says:

> The functions (of learning) are characterized by an initial period when the child is not attending to the relevant dimensions of the problem. He could be looking out the window, dreaming, or trying to find out what it is about the pattern of marks in front of him that makes two words different. It is with this process of detecting the critical features of a problem that the retarded child has difficulty. Once he makes this detection or attends to the relevant dimension of stimulus difference, he learns at the same rate as the normal child. This is not to say that Johnny will learn long multiplication in doing one particular sum. Long multiplication contains many discriminations or difficulties, each of which is learned in one or a few trials once he attends.

Attention, then, is a variable of prime importance in learning. And while the normal child usually manages his own, H.B. Robinson and Nancy M. Robinson (1965, p. 330) call our attention to the teacher's role with the retarded as follows: "For retarded children, management of attention is possibly the most valuable contribution a teacher can make." They further note that this same conclusion is supported by the learning constructs proposed by D.O. Hebb, Strauss and Lehtinen, and Montessori.

Scott (1966) provides us with three general principles for such management:

> First, the child's attention must be directed or attracted to the relevant dimensions of the problem and away from the irrelevant dimension. Second, when the correct attention occurs, it should be secured immediately by reinforcement. Third, to facilitate subsequent transfer of attention, it is necessary to have the first problem or a dimension overlearned before moving to the next. That is, some practice must occur after satisfactory performance has been achieved and before moving to the next problem in order to secure maximum transfer of attention from previous problems.

He translates these principles into specific rules for the classroom, the following of which we can add as numbers 7 to 13 of our Classroom Practice Implication list.

7. Avoid failure sets

8. Use novelty as remediation for failure set

9. Use easy to hard sequences

10. Use multiply relevant clues

11. Present material in sets that share common dimensions

12. Avoid unnecessary shifts of attention

13. Avoid variable and irrelevant clues.

A discussion of the development of these classroom teaching implications would require too much space here, so they will be left as they stand, except for the first--avoiding failure sets. Going beyond engineering attention, one very simple way of giving the retarded help seems to be in the ordering of the success failure complex. House and Zeaman (1960) found that mentally retarded subjects who practiced on easy object discrimination tasks learned more rapidly when presented with a difficult pattern discrimination task than a group which practiced first on difficult patterns.

H.B. Robinson and Nancy M. Robinson (1965, p. 330) remind us that the retarded child "has a history in which failure is much more prominent than it is in the child with normal capacities." They go on to note that studies by Heber (1964) and Gardner (1958) at George Peabody College confirm this hypothesis, and conclude, "On the basis of these studies, it appears likely that a great many retarded children have learned to expect failure and have also learned that after a failure it is seldom worthwhile to increase one's efforts, since further failure is so likely to ensue."

Heber and Gardner actually found that normal children tended to increase their efforts after a failure more frequently and to a greater degree than did retarded children of the same mental age. Under conditions of success, the opposite appeared to be true. For retarded children, success apparently contrasts with their previous history and spurs them to increase their efforts even more than it does for normal children, for whom success is common.

We turn now to still another area where research from various disciplines has focused upon a subject of interest and value to us. Remember the two boys in the job simulation test. These boxes were used to represent concepts, places where things that bore a meaningful relationship to each other might be stored, or ideational bins, if you will, into which the individual might toss the stimuli and impulses which occur in his life, and there compare them for goodness of fit, for determination of action, or simply for storage and future retrieval.

Research literature seems to illustrate conclusively that the retarded have a compraatively limited number of concept bins, and are consequently handicapped in the storing, processing, and retrieval of information.

To illustrate briefly what this is all about, consider these words: Thomasville, Karastan, Kerman (brand names of house furnishings). Into what concept bins do you place these? If they are used in a sentence how do you process them in terms of meaningfulness? Also consider the ideational bin arrangement that allows you to process the words pointer, setter, boxer, and nailer and to group those that "belong" in their proper box, and toss the odd member to its proper setting.

Stedman (1963) has found the retarded deficient in this ability to organize, to cluster, to group by some conceived commonality. Stephans (1963) found that retarded children appeared to possess a more limited number of response categories than did normal, and concluded that a diminished stock of

conceptual categories would seem to impede future meaningful learnings. The retarded child simply lacks a response category or an organizing principle into which he can fit many new experiences.

To consider this concept in still another dimension, a study by Milgram and Furth (1967) showed that when children used a sentence frame, that is, verbally stated the correct principle to be followed at each choice point, their percentage of correct choices increased. In other words, verbalizing concerning the applicable organizing element or ideational bin increased correct response.

Denny (1964) concludes from the results of other studies of the use of such verbalization: "If the above findings hold up, the implications for training the retarded are clear: meaningful mediators can be established and can be expected to last."

Aurelia Levi (1966) of the Albert Einstein College of Medicine has found that working with children in terms of concepts (shape, size, use, aliveness, inclusion, exclusion, pairing, matching, relevant, irrelevant, analogy, seriation) all accompanied by verbal naming and defining, has resulted in noticeable improvement as measured by the Raven tests and by school reports.

From the foregoing two more classroom teaching implications can be established: Classroom Practice Implication Number 14: Much time should be spent in helping the retarded develop concepts, response categories, or ideational bins. Classroom Practice Implication Number 15: The verbalization of the response principle at each decision point is fruitful in increased learning --in other words--say it aloud.

## Summary

To summarize briefly, during the course of this paper some fifteen ideas for classroom action with the retarded have been suggested. Most of them are applicable, of course, to normal children. But this is not to imply that what is good teaching for a normal class population is necessarily the best teaching for retarded. In fact, good teaching for a normal class must of necessity be quite inadequate for retarded children. Also, what we consider good teaching for retarded children might well be grossly inefficient with normal children.

To illustrate:

1. The time spent and methods required to secure and insure attention of the retarded can be both a waste of time and appear childishly immature teaching to the normal. The same can be said for simplification, when carried to the degree which is beneficial for the retarded,

2. The reduction of irrelevant stimuli in the retarded's environment which helps to produce optimum concentration and learning for him may produce only boredom and lack of stimulation and learning in the normal,

3. For the retarded a nonfailure oriented learning situation is almost without exception indicated. Actual failure, or even expected failure, usually induces decrements of effort in the retarded. This is quite contrary to the results obtained with the normal, where research seems to indicate that occasional failure is more often a spur to increased effort and success,

4. The amount of time required to secure an optimum degree of overlearning

among the retarded (remembering that this is greatly influenced by their attention deficit problem) is, for the normal, a waste of time and detrimental to their learning efficiency.

5. Much time which should be devoted to concept formation among the retarded is also contraindicated with normal pupils. They usually have, often through incidental and nonclassroom learning, developed and used a great many of the conceptual categories which must be developed, under teacher guidance, with the retarded.

In conclusion, in answer to the oft repeated question as to what is special about special education, Blackman (1967) concludes: "...special education for the mentally retarded has been a relatively unsuccessful enterprise simply because there has been very little special about it. It would appear that our objective in special education has been pragmatic and unambitious--that is, training mentally retarded children for well adjusted mentally retarded adulthood."

In a joint article with Sparks (1965), something of both his and Sparks' discontent with the status quo is shown in their concluding paragraph: "Proof must be forthcoming that there is more special about special education (for the retarded) than the children assigned to these classes."

However, limited as the investigation was for this short paper, several areas have been pointed out where researchers have shown that the implications for optimum teaching of the retarded are different from or in some respects opposite to those which we would call good for the normal pupil. It has also pointed up other areas where, while the implications may be the same for both retarded and normal, the use of a specific technique with the retarded is much more necessary if optimum teaching and learning is to result.

Fifteen such implications have been mentioned. It would seem that is just these were all put into practice with a single group of children, we would have something special to present, and could amply meet the criticism that have been leveled at our programs by the authors mentioned above, and by Johnson, Cassidy, and others.

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ABSTRACT

A PILOT STUDY OF CAMPING FOR THE MENTALLY RETARDED

by

Barbara Bateman

During the summers of 1965 and 1966, the Joseph P. Kennedy, Jr., Foundation sponsored these studies of camping for mentally retarded. Data were gathered on 145 retarded campers in six camps and on 39 noncamper controls. Data were also gathered on more than 100 counselors and 200 parents.

The findings included:

1. The families of retarded children strongly believe that camping for the MRs is of incalculable value to both the family and the child.

2. The attitudes of counselors toward mental retardation are measurably affected by the performance of the retardates.

3. Children whose IQs are in the 60's seem to benefit significantly more from the camp (in terms of test score gain) than do other groups of MRs.

4. Average IQ gains of 3 to 4 points seem to prevail for the better camps. This finding is directly in line with Oliver's (1958) 4 point gain obtained over a longer period of time in a camp situation which included a structured academic program in addition to usual camp activities.

5. There are significant differences among camps in terms of the measured gains made by the children. The general rule seems to be that the children learn, quite directly, what they are taught. Just as leg strength is increased by exercising legs, so language is developed by teaching language, etc. Thus, different camp programs produce different patterns of gains.

6. Individualized behavior modification programs were employed in the 1966 camp. Seven case studies were done in which specific behavioral changes were accomplished during the camp day (without interfering with the regular program); e.g., decreased crying, rocking, resistance to commands, head hanging, etc.; and increased verbal interaction, eye contact during conversation, staying with peer group, etc.

7. No data were found to suggest that retardates and normals should necessarily be in camp together. Subjectively, our experiences at this point somewhat favor camping for retarded without normals present (except perhaps a very few as "models").

8. Specific recommendations for camping programs for the retarded were offered. To a large extent, they emphasize the importance of establishing very specific behavioral goals and outlining activities designed to accomplish those goals directly, minimizing reliance on transfer of training.

ABSTRACT

DEVELOPING LEARNING ABILITIES THROUGH SIGHT, SOUND, AND SYMBOL

by

Richard Weber

The method of Sight, Sound, and Symbol is a positive, practical and pleasurable approach to the development of learning abilities and basic communication skills: reading, speaking, writing, and listening. The first aim of this approach is to help the student directly and systematically cope with symbols on the printed page. This is a springboard of learning and permits the student to do things for himself. The second aim is to help the student successfully translate these symbols into a variety of meaningful feedbacks, one at a time.

This approach to learning is a result of experience with students ranging in age from two to over 70, and ranging in intelligence test scores from below 20 to over 140. These activities appear, therefore, geared to all students whether they are mentally retarded, of average intelligence, or intellectually gifted, and they are designed to serve the student entering his first formal learning experiences as well as the student who has developed inefficient learning patterns.

An endeavor has been made to avoid or prevent the recurrence of certain typical learning difficulties:

1. Scrambled seeing (b for d, p for q, was for saw, no for on)

2. Scrambled hearing (m for n, j for g, sixty for sixteen)

3. Scrambled speaking (flea for three, gwansigh for go on outside)

4. Scrambled writing (Ǝ for E, W for M, И for N).

The materials follow a theme and variation form. There are fourteen sets of symbolic variations (upper and lower case letters, numbers, colors, geometric shapes, squares containing straight and curved lines) on a single group of familiar melodies limited to a range of only six different notes (the fewest amount of notes with which there are a number of familiar melodies). The unique departure of Sight, Sound, and Symbol is that it varies the symbols rather than the sound. Each of the fourteen sets of six different symbols was purposefully selected to give the student the means to practice and eliminate specific perceptual problems which frequently appear in his learning experiences. Examples of several sets of symbols are as follows: (a) C D E F G A (the C and G and the E and F look alike to the student), (b) M P N B W R (the M N W and the P B R shapes look alike), (c) b d p q g k.

It appears that confusion of similarly shaped letters is due to the fact that the letters look alike to the student because of their structural similarities. Therefore, the student needs to focus on whatever element of the letter makes it structurally different. Some authorities believe that this sort of confusion is the result of lack of neurological organization, lack of spatial awareness, lack of laterality, etc. To cure these difficulties they recommend such diverse activities as walking across boards, creeping and

crawling, jumping on trampolines, putting barrels together, etc. It may be, rather, that such difficulties are due to lack of learned orientation to the printed page.

Music was selected as the medium to develop these communication skills because it evokes interest, curiosity, and response. The medium is the initial message, for the student's first response to the printed page is a nonverbal matching of symbols printed on the page with similar symbols placed on a keyboard instrument (small electric organ, toy piano, conventional piano). The student's ability to verbalize is not a required entering behavior. During this stage of learning--before naming or writing the symbols--the student learns to:

1. Differentiate similarly shaped symbols by being helped to focus immediately on significant structural patterns that make them different

2. Move consistently from left to right on the printed page

3. Cope with repeated letters in a series one at a time

4. Move down the page one line at a time.

After the student learns to read with both hands (one on the page and one on the keyboard) and can match all of the symbols with absolute accuracy, the feedback becomes speech. After the student can speak all the symbols, the feedback becomes writing.

Sight, Sound, and Symbol treats these three feedbacks to the printed page one at a time: SEE AND PLAY, SEE AND SAY, SEE AND WRITE. By dealing with only one translation at a time, the student is not overwhelmed by the printed page and he avoids the destructive state of "symbol shock," which could result in his shutting out not only all printed symbols but also any person making an effort to teach him these symbols. Of course, the greatest damage is that when one shuts out or suppresses anything from his reality, he also shuts out many other frequently valuable experiences.

It is believed by some that rhythm teaches poor coordination and can be devastating to basic learning processes. Sight, Sound, and Symbol is designed to establish a sense of timing, in a nonrhythmical sense, wherein the student learns to delay the feedback or action from the stimulus until his central learning processes have had time to become involved. Perhaps this is the vital thread that runs through the success and retention of these materials with such diverse groups as two year old normal boys and girls, four and five year old verbal and nonverbal mongoloid boys and girls, severely hyperactive children, adolescents, and adults diagnosed as emotionally disturbed and/or brain injured, and college level beginning piano students. To abstract from the printed page, one must first look at a symbol, take whatever time is necessary for translation, then act. Think then act, in that order. It is helpful to have severly hyperactive children think, think, think, then act. The time for translation varies from symbol to symbol and from individual to individual. If this learning phase is rushed or unnaturally enforced by an anxious or impatient teacher or parent, or by the student's own impulsiveness, learning and communication break down.

It well may be that this communication breakdown is the greatest single cause of behavioral and learning manifestations frequently diagnosed but seldom cured before the student develops inefficient patterns of learning that affects his entire being and becoming.

ABSTRACT

DESIGNING A REHABILITATIVE CULTURE FOR MODERATELY RETARDED, ADOLESCENT GIRLS

by

Judith LeBlanc, Joseph E. Spradlin, and James R. Lent

A rehabilitative culture was designed to develop the personal, social, educational, and occupational skills of 27 moderately retarded adolescent girls. The development of the culture involved modification of the physical and social environment, implementing an explicit, generalized reinforcement system and the initiation of specific training programs. Comparison of pre-experimental and followup observational data showed significant improvement in care of clothing, physical cleanliness, physical grooming, walking, and sitting. Improvements in verbal and social behavior were not demonstrated on the pre-experimental and followup comparisons.

ABSTRACT

REMEDIATION OF PSYCHOLINGUISTIC DISABILITIES OF MENTALLY RETARDED EMOTIONALLY DISTURBED CHILDREN: A COMPARISON OF TWO APPROACHES

by

Joseph G. Minskoff

The main objective of this study was to test the effectiveness of a psycholinguistic approach to the remediation of learning disabilities by comparing three groups: an experimental remedial treatment group, a comparison remedial treatment group, and a nontreatment group.

Thirty-two educable mentally retarded emotionally disturbed children comprised the initial screening sample. A pretest battery consisting of seventeen diagnostic subtests was administered to this group. The diagnostic battery, the major instrument of which was the Illinois Test of Psycholinguistic Abilities, was based on an extended model of psycholinguistic functioning.

Fifteen of the 32 children were selected and matched into triads. This was done on the basis of their psycholinguistic abilities and disabilities which were revealed in the pretest battery. The subjects in each of the five triads were randomly assigned to the three treatment groups. The experimental group received remediation based on a learning disabilities (i.e., psycholinguistic) approach; the comparison group received traditional or global remediation; and the nontreatment group received no remediation. The children in the experimental and comparison treatment groups were tutored individually for 30 sessions. Upon termination of treatment, all 15 subjects were reexamined on the 17 tests of the diagnostic battery.

Both a statistical analysis and a case study approach were used to examine the results of the remediation aspect of the study. These analyses showed a trend for the experimental group to make greater gains in

psycholinguistic disability areas and overall level of functioning than either of the other two groups. It was concluded that the psycholinguistic approach to the remediation of learning disabilities was effective since the factor of attention was controlled by the inclusion of the comparison group.

Implications for future use of case study analysis, remedial methods, development of curriculum, grouping, and teacher training are discussed.

ABSTRACT

MEETING THE NEEDS OF PARENTS--MILIEU THERAPY

by

Bethel Lemmerman

There are several approaches to meeting the needs of parents. It is necessary to discover which method is the most beneficial.

It has been our experience that there are two primary concerns which must be reevaluated and reemphasized constantly. The first concept that must be kept constantly in mind is that the counseling of the retarded child and his family is an ongoing proposition and cannot be implemented effectively on an on and off basis, and that this counseling must be all inclusive in its approach, embracing the problems of all those individuals whose lives are intertwined in the overall picture.

The second concern is the personality and the knowledgeability of the counselor involved. Whether the counseling is on a one to one basis or on a predetermined type of grouping, primarily and inevitably the success or failure of the program rests in the hands of the persons responsible.

ABSTRACT

DEVELOPING TEACHER PRODUCED INSTRUCTIONAL MATERIALS--PART I

by

Wayne D. Lance

Panel: "Teaching Techniques and Materials for the trainable mentally retarded from five to 20"

A rationale for the development and production of materials by the teacher of TMR children was presented. Among the arguments presented to support this point of view were the following:

1. The teacher's awareness of pupil needs

2. The applicability of materials to teaching style and methodology

3. The benefits of the aura of experimentalism
4. The immediate need for materials
5. The relatively small size of the commercial market
6. The facilitation of evaluation and modification
7. The involvement of pupils in development and production.

Eight criteria for developing materials were discussed:

1. The need for a theoretical base
2. The benefit of stating objectives in an operational matter
3. The value of a developmental and sequential structure
4. The relevance of principles of learning
5. The relationship of learning and teaching styles
6. The implications of the social level of pupils
7. The need for a built in basis for evaluation and modification
8. The concern for intrinsic appeal of the material.

## ABSTRACT

## INSTRUCTIONAL AIDS FOR LANGUAGE DEVELOPMENT IN THE TRAINABLE PROGRAM FIVE TO 20

by

Susie Griffin

A fundamental principle of American democracy--to provide facilities for rearing children to lead well adjusted and useful lives--is the ultimate goal in the philosophy of education.

It is common knowledge that basic skills of reading, writing, and arithmetic are extremely important today because of the rapidity of technological and sociological changes. The acquisition of these skills is almost impossible without language development. Language development is basic to our culture and is recognized as a critical and complex problem with far reaching effects upon general scholastic achievement and emotional adjustment. In the trainable program, it is a critical problem.

Realizing the rapidity and increase of technological changes, we have utilized some of the instructional technological media in our classroom to elicit positive responses in the area of language.

## Purpose and Methods of Classroom Language Study

The purpose of our study was to help clarify the relationship of instructional technology to language development. The hypothesis was that children who are severely retarded are not necessarily without built in cues to certain stimuli. We used as our criterion the reaction of most children to mass media--the television. Realizing the necessity of making the study meaningful and developing in a sequential order, the study began with the development of the concept of who I am.

A movie projector and an Instamatic camera were used to take pictures of the children to show them. We utilized their recreation period and took pictures of them bowling, playing ball, playing in the snow, dancing, etc., and the pictures were used as the basis for class discussion. Children who had previously uttered only sounds began to say words: me, I, my picture, my birthday, my ball, etc. We were mindful of the importance of Piaget's studies of the process of concept formation.

After the projector was used to develop the concept of who I am, we began the approach of how I sound. The tape recorder is an excellent medium for this, because the child becomes fascinated with his voice.

The tape recorder can be an excellent source of instructional aids for the teacher of older boys and girls in the Trainable Program. Lessons can be taped days before the presentation and the teacher can allow her aide to work with one group using the tape, while she is working with another group. Also, in the teacher's absence the substitute teacher can utilize the tape as a method of proximity control, since the familiar voice of the teacher offers support to the children.

We are mindful of the power of the television, therefore we feel that the overhead projector is an excellent vehicle to convey messages to our children. If they can remember certain television programs almost verbatim, they can be expected to remember some of the material prepared on overhead transparencies.

Self protection words were prepared for daily use on the overhead projector--stop (along with the symbol of the red light), danger, poison (along with the symbol of a skull), lavatory, etc. Also, transparencies were used for instructions for making jello and other simple desserts, and the children were shown transparencies for simple sewing.

Modification of instructional techniques used with the younger children can successfully be used with junior and adult trainable persons.

Slide pictures can be taken of the students more adept at such activities as preparing foods, working the home making area, working in leather craft, and shown to the less adept, with the help of the teacher aide, while the teacher is working in another area with the advanced student; or the slides can be utilized to reinforce a lesson.

It is important to reinforce language development through the use of a variety of sense modalities: visual, vocal, auditory, and kinesthetic; and it is essential that any instruction for the trainable mentally retarded be systematic, meaningful, sequential, and--most important--individual.

It is also important that there is no undue initial concern with phonetic structure as such, semantic level, or morphological endings. The primary

concern is with helping the child to talk.

ABSTRACT

A CENTRALIZED FACILITY FOR THE MENTALLY RETARDED: FIVE POINTS IN FAVOR

by

James Q. Affleck

The terms integration and segregation, as they are used in reference to the placement of educable mentally retarded students, are considered invalid because they tend to be confused with the broad social issue of integration and segregation of minority racial groups. Meaningful factors are better discerned when placement is considered as either centralized (special school) or decentralized (special class placement). Centralized placement is advocated for educable mentally retarded adolescents in urban settings, and five points are included as substantiation.

Instruction is served through consolidation by allowing an accumulation of equipment and materials and permitting teacher specialization to a degree unlikely in decentralized programs.

The nonacademic curricular areas, those areas most closely tied to later vocational adjustment,can be developed specifically for retarded learners.

A centralized facility presupposes an administrative structure trained and committed to the education of the mentally retarded. Postgraduate education (+18) and family and student guidance can be maintained into the adult life of the student.

The greater specialization afforded the centralized facility offers a more varied practicum, preservice and inservice resource than the decentralized program.

There is more opportunity for the centralized facility to evolve into a community center for the mentally retarded that could promote the shelter, and continue training and guidance for these individuals in an urban setting of growing complexity.

ABSTRACT

A PUBLIC SCHOOL PROGRAM OF INTEGRATION

by

Kathy Lawrence

The effectiveness of Special Class programs for the educable mentally retarded versus allowing these youngsters to remain in regular classes has been

discussed pro and con for many years. Little has been written on parttime placement of the educable mentally retarded in classes with average children based on educational prescriptions for each educable mentally retarded child. Placement needs to be carried out on an individual basis to be of maximum benefit and geared to the needs of each educably mentally retarded youngster. An attempt is made to describe the first steps toward such a plan. Both the strengths and weaknesses are presented as well as background preparations and initial measures necessary to initiate this program and set it into action.

## ABSTRACT

## AUDIOVISUAL INSTRUCTION TECHNIQUES IN THE EDUCABLE MENTALLY RETARDED CLASSROOM

by

Steve A. Brannan

The development of a technology of the instructional process is having a positive effect on classroom instruction in both regular and special education. In mental retardation, the utilization of audiovisual aids with mentally retarded children is seen as a significant factor affecting an increase in the learning level of this particular group. Some of the newer educational media gaining much prominence with the retarded include video tapes, polariod type cameras, teletrainer units, record players and tape recorders with earphone headsets, and 8mm "single concept films" or "film loops". Unfortunately, a paradox seems to exist in that many audiovisual aids are being recommended, but little information is available for teachers concerning the best methods of utilizing instructional media.

Of special significance for the teacher of the retarded is the need to know the most effective methods of utilizing instructional sound films in the classroom. Of all the different instructional media, the motion picture must be recognized as the one most thoroughly studied and the one proven to be an effective educational medium for use in the classroom. Still, there has been a lack of research evidence on the value of film learning with educable mentally retarded children. More specifically, little effort has been made to determine the applicability of proven methods of film teaching with normals to populations of mentally retarded children. Noting this problem, Brannan (1965) investigated five different methods of film teaching with twenty intermediate special classes of mentally retarded children in the Portland, Oregon Public Schools. Utilizing a commercially produced instructional sound film, the twenty classes were randomly assigned to one of the five different methods of film utilization:

| | |
|---|---|
| Method A | Introduction film showing |
| Method B | Introduction film showing, film reshowing |
| Method C | Introduction film showing, pupil participation |
| Method D | Introduction film showing, discussion |
| Method E | Introduction film showing, discussion, film reshowing |

Also studied was the effect on film learning when retarded children received either immediate or delayed knowledge of their film test answers. Two significant aspects of the study were the utilization of a specially designed film study guide and an objective test to direct and evaluate, respectively,

the pupils' film learning. Practical results and recommendations adapted from the study include the following:

1. Film teaching utilizing any of the five methods results in significant learning: all film methods seem to be equally effective, and retention of learned film material is increased when children receive a knowledge of their film test answers.

2. Increased use of instructional sound films should be promoted with educable mentally retarded children.

3. In regard to effective film learning, increased recognition should be given to how a film is utilized in the classroom. If both effective learning and utilization of time are to be recognized, Method A combined with the providing of correct film test answers during or closely following a film test is highly recommended for use with educable retardates.

4. Present day instructional sound films, effectively utilized, are quite applicable with educable mentally retarded children.

5. Increased efforts should be made in constructing and utilizing objective tests to measure the film learning of educable mentally retarded children and these tests should be administered orally to the class.

6. Since the film study guide is seen as a powerful method for motivating and directing film learning, greater efforts should be made in the construction and utilizition of film study guides with educable retardates.

7. Teachers of the mentally retarded should be familiar with, and employ successful methods of, utilizing instructional sound films in their classrooms.

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## ORGANIZATION OF CAMPING PROGRAMS FOR THE MENTALLY RETARDED

by

Robert A. Sternberg

The information presented in this paper is based upon the experiences encountered in organizing and implementing the program at Camp Jimmy, a day camp for exceptional children in Baltimore, Maryland. The term "Exceptional Child" to identify the campers refers to those children diagnosed as mentally retarded, neurologically impaired, deaf, aphasic, and emotionally disturbed.

In order to prevent the overlapping of topics to be presented, this paper will not concern itself with specific recreational activities but will discuss two areas of prime concern in the organization of a day camp program: Selection of Campers and Safety Precautions.

## Selection of Campers

The responsibility for the selection of campers should rest entirely with the camp director who is aware of the needs of the prospective campers and of the camp. Experience has demonstrated that the most accurate method of selecting campers is by interviewing each child with the family in their home. This method has proven far superior to the traditional screening of psychological, medical, and educational reports. It is this author's philosophy that all children have the right to that type of camping program from which they can benefit the most. The criteria for camper selection should be kept extremely flexible as the intent of any camping program should be to provide a service based on a child's abilities and not to concern itself with the maze of diagnostic labels based on a child's disabilities. An example of flexible criteria that has proven workable is camper selection based upon ability to walk, ability to communicate verbally or by gesture, and ability to care for toileting needs.

Once the selection of campers has been made, the camp administration must concern itself with appropriate grouping. There are countless theories about the grouping of exceptional children, however, for a purely recreational camp program, practical experience has proven the worth of grouping based upon physical size, muscular coordination, and communicative abilities--not upon diagnoses. Admittedly, this method has limitations but it also offers a feasible solution to the grouping problems presented by the varied needs of the exceptional child.

## Safety Precautions

In order to offer a worthwhile program to the campers and to ensure the parents of their child's well being, a variety of safety precautions must be incorporated into the camp program. Camp administrators must keep in mind that any form of negligence, no matter how minute, which results in harm to a camper places the camp and its staff in a legally responsible position. It is a must for the camp to purchase liability insurance for every camper and to require the parents to present evidence of medical insurance for their child. The camp should receive a permission slip for camp attendance from each child's physician along with a detailed description of any medication the child uses. The campers should also receive an examination from the camp nurse during the first days of each season. It is highly recommended that the nurse have past experience with handicapped children, especially with children having seizures. (It is relatively easy to hire such a nurse by contacting the Directors of Nursing at nearby state hospitals and obtaining lists of nurses who have resigned due to pregnancy. Such nurses are usually willing to obtain summer work if they can bring their child with them to camp each day.)

The major concern is group size and staff ratio. A ratio of three counselors per group of ten campers is sufficient in most instances. In the case of children with severe communications disorders, a ratio of five counselors per group of ten children is recommended.

## Suggestions

The above mentioned precautions should be an integral part of any camp organization. The following suggestions have been incorporated into the Camp Jimmy program during the past three years; some may prove applicable to other day camping programs:

1. Campers who have at any time had seizures should wear a red shirt during the camp day, including the period when their group is using the swimming pool.

2. Campers should be brought to the infirmary area for their medication. Medication, under no circumstances, should ever be given by a counselor.

3. Two way radios (walkie talkies) should be given to each group so that the counselors are in constant contact with the nurse and director even while their group is away from the central camp area. The value of these radios cannot be overestimated in the event of a seizure while the group is on a hike, or in the event of other sudden or unforeseen hazards.

4. The swimming pool should be divided into areas by the use of nets (cargo nets available at any surplus store) instead of lifelines, since the hyperactive campers quickly walk under lines.

5. The camp day should be totally structured from morning until night. All activities should be rigidly scheduled, and attendance for campers and counselors must be mandatory at all times. Prior to camp, it can be explained to all parents that it is their responsibility to keep the child home when he is sick, since any child sent to camp must participate in all activities of the day.

## SELF-CONCEPT OF ABILITY AS A WORKER: A MEASUREMENT DEVICE FOR USE WITH EMR ADOLESCENTS

by

Donald A. Burke and Donald F. Sellin

It is the purpose of this report to discuss the development of a measurement device adapted from the Brookover General Self-Concept of Academic Ability Scale (1962, 1965, 1967). It is intended to be used by teachers, vocational counselors and other professional workers interested in the vocational adjustment of the educable mentally retarded (EMR).

Goldstein (1964) has observed that "From the time of the first treatment center for the mentally retarded in the mid nineteenth century, the major goal of interested disciplines and services has been to help the mentally retarded individual achieve social and occupational adequacy at maturity (p. 214)." This interest in social and occupational adequacy of the mentally retarded, particularly the EMR, has developed to the point that mass media, governmental agencies, foundations, and occasionally private industry and educational institutions, seem to be concerned enough to testify that "the retarded can be helped", or that "they are reliable workers", or that "they can learn." One would think that all that needs to be done is to train enough personnel to carry on the teaching, training, counseling, placement and followup and our major goal will have been satisfied. The unfortunate truth is that:

> The occupational picture for the retarded is far from encouraging. Occupational categories once the province of the retarded have been decreasing markedly in the past half century. Predictions of experts indicate that this trend will persist, but at a reduced pace. Much of the disappearance

> of jobs for the retarded may be attributed to technological changes wrought by automation and mechanization in industry, on the farm, and in homes. Competition for remaining jobs has become more keen because of the large labor pool available for such work. The spotty nature of this problem has created conditions in a limited number of occupational centers. It is suggested, however, that this problem will become more universal as technological changes take place.
>
> Indications are that training programs as well as counseling and guidance services for the retarded are already playing a critical role in the social adjustment of these workers (Goldstein, 1964, p. 254).

## The Self Concept

At least one prerequisite for social adjustment and/or occupational adequacy is suggested in this comment by Combs (1962), "Extremely adequate, self actualizing persons seem to be characterized by an essentially positive view of self (p. 51)." Apparently this observation that the adequate person tends to have a positive view of self is acceptable to personality theory. Heber (1964) notes, "Central to a number of contemporary theories of personality is a global concept which, in general, refers to the sum total of all the characteristics a person attributes to himself, and the positive and negative values he attaches to these characteristics. Rogers (1947) has termed this the 'self concept' (p. 146)."

Goldstein and Seigle (1958) in discussing characteristics of the EMR, observing how inadequate feelings of self worth might develop:

> A characteristic of educable mentally handicapped (EMR)... is that of self devaluation. This characteristic is a result of imbalance between the child's competencies, intellectual and physical, and the demands of his environment. Self devaluation most frequently manifests itself in behaviors and attitudes signifying that the child has strong feelings of general unworthiness and that he holds his abilities in low esteem (p. 12).

Interestingly, this global view of self, sometimes referred to as the phenomenological self, has generated a considerable body of literature. However, as indicated by Heber (1964), "Despite the importance of global concepts of 'feelings about one's self' in contemporary personality theory, one can only speculate about the self concept of the mentally retarded (p. 147)."

Concerning the limited amount of literature in this area related to the retarded, one would have to be honest and suggest that if the global strategies established in investigating self concept in the general population were adopted as standard procedures for investigating self concept of the EMR, the usefulness of the information might continue to elude us. Certainly one of the problems in identifying the relevance of research findings of self concept studies to how people behave is related to the use of multifactor instruments and the desire to express results as an indication of subjects' general self concept.

It would seem then that the very characteristic thought to be essential to social and/or occupational adequacy is often less than adequate in the EMR

population and yet, as presently defined, appears to be extremely difficult to study with any consistency.

W.B. Brookover and his associates at Michigan State University (1962, 1965, 1967), influenced by symbolic interaction theory, particularly as detailed by George Herbert Mead (1934), have concerned themselves with the development of a theory of school learning which refers to a category of symbolic behaviors defined as "...the evaluation one makes of oneself in respect to the ability to achieve in academic tasks in general as compared to others (Brookover, LePere, Hamacheck, Thomas and Erickson, 1965, p. 51)." According to Brookover(1967):

> The basic propositions of this theory assert that a student's self concept of academic ability results from his perceptions of the evaluations significant others hold of his ability. The student's self concept of academic ability in turn functions to limit the level of academic achievement attempted. Self concept of academic ability is therefore hypothesized as an intervening variable between the expectations and evaluations of significant others and school achievement. The relationship of perceived evaluations of significant others is conceptualized as a necessary and sufficient condition, i.e., a change in the perceived evaluations of others will be reflected in a change in self concept. The relationship of self concept of ability to academic achievement, on the other hand, is hypothesized as a necessary but not a sufficient condition for the occurrence of a particulary level of academic performance (p. 140).

Recently, Brookover and his associates have extended their research interests to the EMR and the effect of special class placement on the self concept of academic ability. (Towne and Joiner, 1966; Schurr and Brookover, 1967)

## The General Self Concept of Academic Ability Scale

The authors of the present report, generally influenced by the social theory of mental retardation as discussed originally by Dexter (1958) and more recently by Mercer (1965), as well as the work cited above, and with encouragement from Brookover, have adapted the General Self Concept of Academic Ability Scale (Brookover, 1962, 1965, 1967) for use with EMR adolescents. The nature of the scale adaptation, the scale itself with a description of the items, general results of tests of reliability, and recommendations for using the adapted scale will follow.

There is reason to believe that as the EMR moves through the several levels of program provided by public schools he is likely to find an increasing emphasis on vocational adjustment and decreasing emphasis on academic performance. This assumption is at least partially supported when one considers the expansion of vocational rehabilitation services for the EMR at the secondary school level and the emergency of cooperative agreements between public schools and state rehabilitation agencies as authorized under P.L. 89-333. This vocational trend of many secondary level EMR programs prompted the authors to modify the Brookover scale in such a way as to measure the EMR's self concept of ability as a worker rather than his self concept of academic ability.

The measurement device, which employs an interview technique, is

organized into six distinct sections:

1. Sample Questions. It is the purpose of this section to determine to what extent the adolescent EMR is able to respond to the type of questions asked in the scale itself. Specifically, the interviewer gives the subject an opportunity to state preferences (favorite TV programs and favorite cars), an opportunity to relate how he thinks his parent(s) or guardian(s) would answer a specific question (my father thinks Ford cars are: (a) the best, (b) above average, (c) average, (d) below average, (e) the poorest). The adolescent EMR is also asked to think about his parents or guardians, his best friend, and his favorite teacher and indicate how he thinks they might rate his favorite TV program (Sample question number 1). Finally, the interviewer discusses the concept of job ability (how well one will do in work) to insure that the adolescent EMR does understand the general nature of the scale. It should be noted that no score is achieved in this section and that it is the judgement of the interviewer which determines whether or not the scale should be administered beyond this point.

2. Significant Others. This section is designed to find out from the subject who the important people are in his life. The subject has an opportunity to answer this question first in a general way, then specifically as it relates to (a) those who are concerned about how well he will do in work, and (b) those who are concerned about how well he will do in school. In each case the relationship between the subject and named person(s) is determined.

3. Self Concept of Ability as a Worker: General. This section which consists of thirteen questions is designed to allow the subject to rate himself in job ability as compared to friends and classmates. It also asks him to think about his ability to hold a job, how he would rate himself with most people, his ability to become a skilled worker (secretary, machine operator, etc.) by completing special or additional training, and the pay he thinks he is capable of earning for his work. There are eight such basic self concept of work ability questions, each one providing five possible answers generally ranging from "among the best" or "I'm sure I can" to "among the poorest" or "I'm sure I can't." There is also an opportunity for the subject to think about the kind of job he would like if he were free to choose any job and a similar question related to staying in school and getting as much training for a job as he would need. In both cases there is a companion question which asks if the subject expects he could reach the stated goal. The remaining question asks the subject to name the one person he would want to be like.

4. Perceived Self Concept of Ability as a Worker: Parents. In this section, which consists of five questions, the subject is asked to answer questions related to his job ability as he thinks his parent(s) or guardian(s) might answer them. For example: "How do you think your parents would rate your job ability compared to other students your age? (a) among the best, (b) above average, (c) average, (d) below average, (e) among the poorest."

5. Perceived Self Concept of Ability as a Worker: Friend. The nature of the five questions in this section is he same as above except that it allows the subject to respond as he thinks his best friend might respond. For example: "Where do you think your best friend would say you will rank in job ability when you leave school? (a) among the best, (b) above average, (c) average, (d) below average, (e) among the poorest."

6. Perceived Self Concept of Ability as a Worker: Teacher. In this final section the subject thinks about his favorite teacher and answers the five questions as he or she might. For example: "Do you think that your

favorite teacher would say you have the ability to hold a full time job? (a) yes, definitely, (b) yes, probably, (c) not sure, either way, (d) probably not, (e) no."

Relative to scoring procedures, the scale is made up of thirty-one questions, six of which cannot be assigned numerical scores as they ask for names of people or the kind of job the subject wants or expects to get. Two other questions which relate to the kind of school experiences the subject wants and expects to get are scored on a four point scale. The remaining twenty-three questions are assigned scores on a five point scale where "a" responses get five points, "b" responses get four points, "c" responses get three points, "d" responses get two points and "e" responses get one point. The number of points a subject could score then would range from a low of 25 to a high of 123. It is possible to compute subscores on four of the five sections of the scale itself as follows: The Self Concept of Ability as a Worker: General scores would range from 10 to 48; The Self Concept of Ability as a Worker: Parents section as well as the Friend and Teacher sections scores would each range from 5 to 25.

## Methods used to Determine Reliability and Usefulness of Scale

In an effort to determine the reliability and possible usefulness of the Self Concept of Ability as a Worker Scale the authors sought to enter a cooperative arrangement with a vocationally oriented secondary school level program designed for EMR adolescents. Such an arrangement was made with the Kent Occupational Education and Training Center (KOETC) located at Wyoming, Michigan. The center, which meets the program standards as defined by the Michigan Department of Education, offers classes, both academic and nonacademic, geared to functional literacy, a sheltered workshop setting for vocational diagnosis and evaluation purposes, community job placement and followup, a well rounded program of physical education, driver education, city wide school athletics, and a variety of extracurricular activities for its students (1968).

During the school year 1965-66 there were 84 students enrolled in the KOETC program. Their ages ranged from 16 years, one month to 19 years, eight months. The IQ's of the group ranged from 50 to 83 as measured by the Wechsler Adult Intelligence Scale.

A test and retest procedure was adopted to determine the stability of the scale. It was agreed that, using the interview technique recommended by the authors, an adult familiar to all the subjects would administer the scale on both occasions. The person selected was a certified teacher of the EMR employed by the Kent County (Michigan) Intermediate School District. The amount of time between the two interviews in each case was set at 30 days. Pearson product moment correlation coefficients were calculated to determine the extent of linear relationship between the test and retest of the 84 subjects, not only appropriate subtotal and total scores, but also on each item.

In an effort to determine to what extent the scale was internally consistent the authors employed a technique discussed by White and Saltz (1957). They advocate the use of the Phi Coefficient (Øit) primarily "...because computation is easy and because the significance level of the obtained statistic can be determined exactly (p. 93)."

Although no attempt will be made here to discuss the specific results of the analyses mentioned above it may be said generally that, within the

limits of the population used and the procedures employed, the scale does meet criteria of temporal and internal reliability and that the results to date compare favorably with those reported by Brookover and his associates (1962, 1965, 1967).

## Observations

Due to the fact that the cooperative arrangement between the authors and the KOETC only dates back two and one half years, any discussion relative to the specific usefulness of the scale would be premature. However, the vocational placement workers of KOETC have been using the scale each year and some interesting observations have been made by them. For example, in the work placement followup period for the school year 1966-67 (the first group of workers to have been measured once during their prevocational experience and again a year later during their on the job training), it was observed that, of the 29 graduates that year, the four workers who had given themselves the lowest total scores in both interviews (indicating a low self concept of ability as a worker) were evaluated by employers and vocational followup personnel as having serious problems in their work performance. The four workers who had given themselves the highest total scores (indicating high self concept of ability as a worker) were evaluated as having outstanding work records, in fact three of the four were recipients of school awards for having maintained excellent work records. Employers and staff involved in the performance evaluations were not aware of the Self Concept of Ability as a Worker Scale scores at the time their evaluations were made. We do not, of course, offer this information as evidence that the scale has value. That remains to be demonstrated as workers in the field begin to use the scale.

## Potential Usefulness of Scale

Concerning the use of the Self Concept of Ability as a Worker Scale, the main point which the authors would like to stress is that the scale is to be used as an aid in teaching and counseling the EMR adolescent. We would hope that no one would use the scale as a screening device to include or exclude individuals from vocationally oriented programs. We propose that the scale should be used as an aid to a teacher or a vocational placement worker, not in deciding whether or not an EMR is ready for a work placement, but rather as an indicator of: (a) the kind of classroom activities which should be devised to support the youngster as he prepares himself to enter the world of work, (b) the kind of job that should be selected, specifically as it relates to the perceived ability of the youngster, and (c) how much supervision a youngster will need when is placed on a job.

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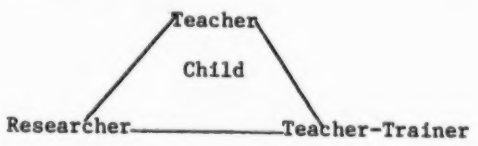
ABSTRACT

# PDK GOOD PRACTICES CONFERENCE FOR TEACHERS OF THE MENTALLY RETARDED: AN INNOVATION IN "INSERVICE TRAINING"

Alexander L. Britton

Special Education has matured to the degree that documentation is no longer necessary when one espouses functional goals, through assessment planning and evaluation in education of the mentally retarded. The question arises, however, as to whether special class teachers are aiding children to accomplish those stated goals.

An area of apparent weakness may exist in a breakdown of communications within the education triangle:




Often trainees are unable to test new ideas, while experienced teachers reinforce old and perhaps irrelevant techniques, colleagues lack facilities for sharing, and researchers lack feedback from the classroom.

The Phi Delta Kappa, Gamma Rho Chapter's one day conference utilizes mentally retarded children as subjects for demonstrations before groups of 20 to 25 conferees. Master teachers share assessment procedures, strategies and techniques for teaching the retarded at various age levels. Curriculum guides, courses of study, and current research may be tested in classroom settings. Opportunity is provided for critical evaluation, justification, and a dialogue among the members of the triumvir is established.

The following examples may illustrate:

1. (Middle grades) A Long Beach Unified School District teacher demonstrated a lesson on health and self care, emphasizing temperature and the thermometer, showing the transition from calendar and weather to normal room and body temperature.

2. (Primary grades) A Placentia Unified School District teacher demonstrated the utilization of the Peabody Language Development Kit correlated with finger play, stick and bag puppets.

3. (Upper grades) A psychologist presented Illinois Test of Psycholinguistic Abilities profiles and conferees explored the development of strategies and planning for the subjects.

The conference is cosponsored by California State College at Long Beach, the California State Department of Education, Division of Special Schools and Services, and the Superintendent of Schools Offices of Los Angeles and Orange Counties.

# AN INVESTIGATION OF THE DOMAN-DELACATO THEORY OF NEUROPSYCHOLOGY AS IT APPLIES TO TRAINABLE MENTALLY RETARDED CHILDREN IN PUBLIC SCHOOLS

by

John R. Kershner

The central concept of the neuropsychological theory proposed by Doman-Delacato is that of neurological organization. This concept assumes that ontogeny (the process of individual development) recapitulates phylogeny (the process of species development). The development proceeds in an orderly anatomical fashion through the medulla and cord, pons, midbrain and cortex, and culminates in cortical hemispheric dominance. According to this rationale, the individual's development of mobility, manual competence, tactile competence, vision, audition, and language parallels, and is functionally related to, his anatomical progress.

It has been further reasoned that degrees of incapacity of the locomotor and sensory modalities are a function of degree of insufficiency of neurological organization. Thus, by measuring the level of neurological organization, it theoretically becomes possible to prescribe activities aimed at facilitating the developmental process and eliminating dysfunctions. Diagnosis must attempt to evaluate the total person with respect to all sensory pathways, as prescription must attempt to treat the total person via all such pathways.

Application of the concept of neurological organization has resulted in the Neuropsychological method of treatment for the mentally retarded, according to which cognitive functioning is related to neurological development as evidenced by perceptual motor ability.

One of the important causes of mental retardation is injury to the nervous system, especially the brain. Proponents of the Neuropsychological approach assert that it is possible to restore brain functions that have been impaired or badly developed by subjecting the child to a treatment program aimed at developing proper neurologic functioning. It is their contention that learning disabilities of an organic causation have their origin in the brain; therefore, efforts to overcome such deficiencies should be directed toward the brain.

The purpose of the present investigation was to determine the effects of a structured program of physical activities consistent with the Neuropsychological Theory on the physical and intellectual development of trainable mentally retarded children and thereby assess the Theory of Neurological Organization in a public school setting.

The study was conducted in two schools of the Northern Lehigh School District, Lehigh County, Pennsylvania. Subjects consisted of 30 trainable mentally retarded children: 16 control subjects and 14 experimental subjects. Treatments were randomly assigned to intact classes, and in each case administered by a teacher and teacher aide. The teacher of the control group received individual and group instruction designed to impress upon her the experimental, innovative and beneficial nature of her program, and to initiate her into its implementation. The teacher of the experimental group attended a seven day orientation course offered by the Institutes for the Achievement of Human Potential in Philadelphia. At no time during the course of study was the term "control group" used: all personnel involved in the conduct of

treatment procedures believed both groups to be experimental.

The hypotheses, stated in question form, were as follows: (a) Does a program of specialized physical activities that is consistent with the Doman-Delacato Theory of Neurological Organization contribute to the creeping and crawling ability of trainable mentally retarded children? This question assumes importance in that creeping and crawling abilities are the motor expressions of critical levels of neurological organization. In this role improvements in creeping and crawling abilities would signal enhancement of mobility and consequent neurologic functioning. (b) Does a program of specialized physical activities that is consistent with the above theory contribute to the perceptual motor proficiency of trainable mentally retarded children? (c) Does a program of specialized physical activities that is consistent with the above theory contribute to the functional intelligence of trainable mentally retarded children?

## Pretesting

All children were pretested on creeping and crawling ability via a forty-eight point scale originally developed by Dr. Robert Doman, on perceptual motor proficiency via the Kershner-Dusewicz-Kershner (KDK) group adaptation of the Oseretsky, and on cognitive abilities as measured by the Peabody Picture Vocabulary Test (PPVT) Form B. The groups were similar in creeping and crawling and perceptual motor proficiency but they differed significantly on the PPVT.

## Method

The experimental and control programs were in effect from November 1, to February 28, 1967: 74 school days, with the interruptions of Thanksgiving and Christmas vacations. The experimental treatment is based on the assumption that experience affects the brain and that specific types of experience will affect specific levels of the brain.

Activities are sequentially structured according to the neurological stages of development. Each stage is described by qualitative levels which allow the individual to perform at his own functional level. Hence, activities designed to develop a particular neurological stage are essentially group activities, although an individual program of treatment based on specific evaluation of competency is prescribed for each child. Each child is taught to master his lowest functional level before going on to the next higher level. The experimental program thus centered around a one hour per day period of the mobility activities which aim to enhance neurological organization, and activities inducing stimulation through all the sensory modalities. The entire school curriculum, five and one half hours per day, involved activities consistent with the Doman-Delacato Theory of Neurological Organization. The more strenuous activities were conducted in a multipurpose room, the remaining activities taking place in the classroom.

The control group program, in effect for the same period of time, was one of nonspecific activities. The games and exercises of this group were constructed to give reason for the teacher to direct individual and group praise and encouragement. The children were given attention and exposed to enthusiasm approximately equal to that received by the experimental group. The program centered around one hour per day of gross motor activities, and varied games and exercises. The more strenuous activities were conducted in a

multipurpose room, the remaining activities taking place in the classroom.

## Posttesting

Posttesting was conducted at the conclusion of the treatment period by the same testers. The instruments used were again the scale of creeping and crawling ability, the KDK group adaptation of the Oseretsky, and Form A of the PPVT.

## Limitations

Restrictions are imposed upon attempts to apply the findings of this study to contexts differing from the one reported. Neither a random sampling of the population nor randomized assignment of children to groups was accomplished. The extent to which and to whom the results can be generalized is, therefore, affected to an unknown degree. Also, since there was only one teacher and an aide supervising each group, the extent to which differential teaching effects entered into the findings is unknown.

## Discussion

A Mann-Whitney U test performed on the creeping and crawling gain scores between groups revealed that the experimental group had improved significantly more than the control group. Thus, the results from hypothesis I supported a very basic assumption of the Doman-Delacato position, i.e., that creeping and crawling performance improves through participation in creeping and crawling activities. This serves as an important control for the effectiveness of the experimental procedures.

A Mann-Whitney U test performed on the motor development gain scores between groups revealed that there were no significant differences between groups, although both gained significantly with respect to their pretest scores. These results from hypothesis II did not support an explicit contention of the Doman-Delacato position, i.e., that recapitulation of early perceptual motor developmental sequences is prerequisite to the performance of more sophisticated perceptual motor skills that are not practiced. In addition, the data provided are not conclusive for accepting motor improvement as a singular results of either treatment, as observed gains in both groups on the KDK scores could be attributable to maturation or the effects of testing. Caution should be exercised in interpreting results from hypothesis III which tended to support the Doman-Delacato theoretical position. An analysis of covariance, using pretest PPVT scores as the covariant, was performed on posttest PPVT scores and yielded significant gains in favor of the experimental group. Covariance analysis, however does not alter the indication that both samples represented different populations. Therefore, the significance of the gains exhibited by the E group on the PPVT is affected by the degree that covariance analysis is inferior to randomization and the unknown extent to which the improvement may have been due to uncontrolled factors associated with initial group differences.

The three hypotheses were chosen to test the Doman-Delacato Theory of neurological organization as it applies to trainable mentally retarded children. Some basic assumptions of the theory were supported and the experimental treatment appeared to have a facilitating effect upon the intellectual development of the children in the E group. However, the uncontrolled factors

that could have accounted for the PPVT gains necessitates discretion in interpreting these findings. The fact that there was only one teacher in each treatment suggests that factors such as amount of task directed acitivity, amount of exposure to vocabulary and teacher enthusiasm may have been operating differentially in the two groups. The groups were not described in specific terms, therefore unaccountable factors associated with initial group differences may have been present.

Within the stated limitations, these findings suggest that the procedures may prove beneficial in application with retarded children in public schools. On the other hand, the lack of significance between groups in motor development and the motor improvement exhibited by the control group questions the validity of the Doman-Delacato contention that ontogenetic development consists of an invariant sequence of stages and that proficient motor functioning at higher levels is dependent upon successful completion of lower levels.

The principal investigator was unable to find any similar experimental investigations in the literature. The small sample and limitations in research design necessitate caution in deriving valid inferences from these findings but clearly point up the need for larger scale investigations along similar lines.

## ABSTRACT

## SEGREGATION AND ITS ISSUES

by

Oliver L. Hurley

The case is presented for the centralized day school, as contrasted with dispersed special classes. It is contended that the day school can better enhance the effectiveness of the teacher pupil transaction through improved opportunities for communication between teachers, between teachers and psychologists, and between teachers and supervisors; for articulation of the program and its content; and for instructional grouping according to relevant educational dimensions.

## PROBLEMS OF SEX EDUCATION FOR THE EDUCABLE MENTAL RETARDATE IN THE DAY SCHOOL

by

Sadie M. Douglass

Although there has been very little literature concerning sex education programs for mental retardates, there are hopeful signs of awareness of this neglect and positive steps in progress toward its correction. Dr. Julian V. Stein, Director of the Project on Recreation and Fitness for the Mentally Retarded, and The Sex Information and Education Council for the United States are cooperating in an effort to deal with the problems of teaching sex

education for the mentally retarded. Their plan of operation may be of value to those who may wish to begin a prompt course of action on the problem at the community or school level. These organizations have already set into motion the following steps:

1. The collection of information and materials from those individuals or departments who have already become involved in sex education for the mentally retarded

2. The appointment of a task force or a committe to review, evaluate, and make recommendations relative to the above mentioned data

3. The development of pamphlets, books, unit guides, and audiovisual materials

4. A plan to use the materials developed--on an experimental basis--with mental retardates of various ages and functional levels, and in a variety of environmental settings.

After almost ten years of study and evaluation of existing sex education courses, the Baltimore City Public Schools released a tentative guide in sex education for children in Kindergarten through 12th grade in September 1967. Currently, the program is being implemented in the sixth grade. Mental retardates on the intermediate level are included in this trial run.

The entire Kindergarten through 12th grade program has as its objectives the development of three basic concepts, namely:

1. Family living influences one's attitudes, values, and behavior.

2. Growth and development is a personal, unique, and a natural life process.

3. Successful living requires sound personal and social relationships.

The junior high program will be phased into the various academic subject areas next fall. This course of action is contrary to the thinking of veteran pioneers such as Dr. Mary Calderone who believes that family life education should be taught as a separate entity. The fact that incomplete coverage will result from the plan of operation chosen for the junior high level means that each junior high school will have the responsibility of planning a short supplementary unit of study adapted to the needs peculiar to its community setting.

Preparation for this step will begin in May with a five day workshop. Two to four representatives from each junior high school will participate. Subsequently, these persons will assist the principal in organizing the supplementary unit.

Workshop enrollees will be exposed to the following topics in the five sessions:

1. Purpose of the workshop
   Why family life education is needed
   Community readiness

2. Adolescent growth patterns
   External and internal changes in boys and girls
   Human reproduction and the birth process

3. Understanding emotional change
   Dating, going steady, and dating standards

4. Preview of films

5. Guidelines in planning family life education
   Small group discussions of possible units of study.

Mrs. Koma Stinchcomb, former supervisor of Junior High Special Curriculum,and I worked with the committee whose efforts made the accomplishment just referred to come to fruition. However, under Mrs. Stinchcomb's direction and with the help of the four specialists comprising our Junior High Special Curriculum Supervisory staff, a unit on family life education for mentally retarded adolescents was completed about six years prior to the publication of the Kindergarten through 12th grade guides for regular grades. At that time, it was reviewed and received noteworthy acclaim. Nevertheless, permission for its use was not granted until this year and even now, permission is limited. The reasons for this situation will become apparent as we discuss other aspects of the total problem. The concern is great because of the delay. It is important to help those eighth and ninth grades who may leave school before they receive any help with the problems they face in their sexual adjustment. In the words of Hutt and Gibby (1958) the seriousness of the situation really comes alive: "If the period of puberty is described as a period of 'storm and stress' for the child of average intelligence...Then it could well be termed a typhoon of cataclysmic proportions for the retarded child, particularly the one who lacks guidance (p. 185)."

## Factors Affecting the Need for Sex Eduation

The whole situation has become crucial for the majority of our youth today, retarded and nonretarded alike. Society has condoned the erotic connotations of every conceivable commodity on the market. Sexual situations, once considered immoral, flood T.V., movie screens, and the live drama of the theater. The law has trouble controlling the output of pornographic pictures and books which circulate throughout our schools. The accounts of broken homes among public figures have affected the importance once attached to the disastrous effects of broken homes upon our youth. The educational lag in sex education has failed to bridge the gap for youth as society has outgrown the restrictions of the Puritan Age and moved into permissiveness of the "Age of Liberation," which is characterized by the prevalence of increased premarital pregnancies, homosexuality, and rising statistics in cases of venereal disease and drug usage and addiction.

It is thought that some of these current behavior patterns, once attributable in large measure to children of the most disadvantaged classes in our society, have invaded middle and upper class society to a great extent.

Marked changes in the behavioral patterns of youth have forged the first link in the chain of circumstances which have made sex education of vital concern to all educators. These changes have been instrumental in altering our entire concept of sex education. In the not too distant past, sex education was quite uncomplicated; it merely meant explaining menstruation and human reproduction. Consider these quotes which now conceptualize sex education:

1. It is sexuality, not sex, that is crucial. Human sexuality is what is important...Sexual identity is an important part of the self-image and

affects every aspect of life. For example, sexuality involves the name we are given at birth, the toys we play with as a child, the clothes we wear, the friends we have, the courses we take in school, the careers we choose, the things we like to do, the way we see our roles and responsibilities in our homes, and last but not least, the ways we...cope with our sexual needs and urges as responsible and committed human beings... sexuality refers to human relationships and interrelationships between the sexes. It involves an examination of men's roles and women's roles in society and how they relate and react to supplement each other; the responsibilities of each toward the other throughout life; and the development of sexual power as a creative and recreative force (Schiller, 1968, pp. 17-19).

2. The main purpose of sex education is to help young people understand what masculinity is to boys and men, femininity is to girls and women... If properly taught, it does not dwell so much on the facts of reproduction as it does upon the development of informed and rational attitudes toward sexuality (Hindricks and Kaplan, 1967, p. 67).

Sexuality, attitudes, responsibility, and morality are the terms emerging from these definitions which challenge the special educator to a far greater degree than others. They represent the abstractions which mental retardates have limited ability to internalize. Can we hope to develop in these children the understanding that restraint in yielding to immediate sexual impulse will bring future rewards, and, conversely, that lack of restraint brings unhappiness and places undue burdens upon the family and society at large? Can we teach them to react responsibly to sex impulses? In addition, we face the inescapable fact that the majority of our children come from the most disadvantaged classes of society with mores and customs in some cases widely divergent from those which middle class schools strive to impose. This makes the task of the school even more difficult, for, over and above the general characteristics of the lower classes of society, are specific differences in sexual behavior typical of the various family structures represented within these classes. Since culture impinges upon its offspring at birth, it appears necessary that we have more intimate information about the practices and processes of child care and socialization, the patterns of premarital sex, and types of family disorganization in migrant, immigrant, mountaineer, white, and nonwhite family units. Surely, this information is of great import as we explore approaches, methods of instruction, and achievable goals.

Thus far, the following problems have been implied:

1. The paucity of appropriate information regarding sex education for the mentally retarded

2. The need to internalize a broader concept of sex education as a basis for curriculum design

3. The climate of sexual permissiveness that has affected our youth to an extent that will challenge the best efforts of educators

4. The need for more knowledge of family mores and customs to determine our approach to the problem of sex education in terms of meeting individual needs.

## Sex Education Problems

Finally, let us examine some information about sex education problems for the nonretarded which may be applicable to this discussion. It is generally agreed upon that securing the involvement of parents in such a program is a problem of prime importance and their active participation should continue for the duration of the program. Their activities would include discussion and study groups, previewing books and audiovisual aids, investigating community resources, etc.

Of equal importance is the teacher. The most definitive standards for the identification of the right person into whose hands the sex education program may be placed have been described by Miss Doris E. Terry (1968):

> The teacher must have a broad-based knowledge of sex mores including the historical and linguistic perspectives which have had so much influence on our society.
>
> The teacher must be comfortable with his or her own sexuality.
>
> The teacher must know and understand the psychosexual pattern of human beings and the significant influence this has on the development of a healthy sexuality.
>
> The teacher must be comfortable with the language of sex and be able to use it purposefully.
>
> The teacher should be aware of changing times and alert to significant changes in attitudes about sex (p. 4).

Out of 250 teacher training institutions, only 21 offer courses to prepare teachers to teach sex education and of the remaining 229, only six have plans to offer courses in the future. It thus becomes evident that teacher training adds another problem in the implementation of programs in sex education.

Fortunately, the subject matter content of a program in sex education does not present a major problem. Many guidelines are available, and there are similar elements in each. A typical Kindergarten through 12th grade program may be:

1. Kindergarten -- teaching children how they grow
2. Primary grades -- learning and using correct names for the sex organs; learning about reproduction; the need to love and care for babies; learning how to help at home
3. Grades four through six -- teaching children about body changes during puberty and adolescence, including menstruation and masturbation
4. Junior and Senior High -- learning how to deal with family relationship; getting a deeper understanding of the reproductive system and the importance of prenatal care; courtship and engagement as preparation for marriage; homosexuality and other generally unaccepted sex practices.

Of course, in planning good programs in sex education, the wide difference in individual rates of growth, maturity, and comprehension levels

must be provided for. This means provisions for review and reinforcement of previously introduced information before presenting the materials prescribed for a given grade or level designation.

Finally, the administration of programs is a controversial issue. Some advocate that the subject be taught peripherally as a part of social studies, science, etc. Dr. Mary Calderone, whose comprehensive study of this entire area is well known, believes that sex education should be taught as a separate entity handled by the most qualified persons who can be secured.

In conclusion, may I share with you the thinking of Patricia Schiller (1968):

> Children in special education classes and schools should be involved (in sex education programs) as well as those in regular classes. A principal pointed out this need recently when he reported the pregnancy of a 14-year old special education student who is confined to a wheel chair. She had never received sex education at home or at school (p. 19).

Obviously, the need is critical, and urgent. How rapidly can we move to meet its demand?

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## ABSTRACT

### HELPING PARENTS THROUGH INDIVIDUAL CONFERENCES AND WRITTEN REPORTS

by


Sister M. Evodia



Because the very fact of retardation creates a crisis in a family, the teacher of mentally retarded children finds herself being required to deal not only with the ordinary questions pertaining to progress and behavior, but also with problems concerning parental adjustment to, and acceptance of, the handicap.

Parental reaction to retardation appears to fall into three chief categories: (a) the parents admit the retardation and accept the child, (b) they seek a scapegoat upon whom to lay the blame, or (c) they deny the retardation. The special class teacher then must have, in addition to her professional readiness to teach the retarded, a sincere appreciation of the problems engendered by the presence of a retarded child in a family and, although she is not expected to take on the role of a counselor, she must develop a willingness to be consulted when a problem centers around the child. She is the parents' most active partner in the development of the child.

RESEARCH

# AN INPUT OUTPUT APPROACH TO PSYCHODIAGNOSIS OF CHILDREN

by

Luciano L'Abate

Existing traditional psychodiagnostic models suffer from at least seven distinct shortcomings:

1. Lack of explicit formulation

2. Fragmentary and arbitrary modes of thought in which no one approach is sufficient to handle all aspects of psychodiagnosis

3. Borrowing from a variety of theories either on ad hoc or a post facto basis

4. Insufficiency in linking practice to theory or allowing theory to govern practice (For instance, which model can tell us how to select tests, how to construct a battery, and how to interpret responses and results?)

5. Separation and alientation from the science and profession of psychology, because this activity is low in prestige value and most psychologists have abandoned it for other seemingly more exciting activities (research, teaching, psychotherapy, behavior modification, etc.)

6. Unsatisfactory, gross, and undifferentiated psychodiagnostic practices based on few and not always true instruments such as: Wechsler Intelligence Scale for Children (WISC), Draw-A-Person (DAP), Thematic Apperception Test (TAT), Bender-Gestalt, Rorschach, with little concern for the different, rather than lower, skills of deprived and minority group children

7. The expressive aspects of functioning emphasized without attention being paid to what a child receives. He is judged only in terms of what he says or does.

This final shortcoming is probably one of the most deleterious practices in the evaluation of exceptional children because it fails to acknowledge a basic, important aspect of psychological functioning--reception.

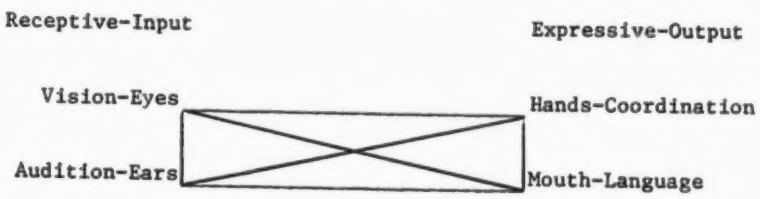
To obviate the latter, and possibly to correct some of the other shortcomings, the model in Table 1 is presented. It is based on the following assumptions: Input is operationally defined as that aspect of functioning in which the child omits or responds with a discreet, short (both spatially and temporally) response dichotomy (yes or no, black or white, true or false) or multiple choice (one out of 3 or 4 at the most). Output, on the other hand, is defined as a chain of interconnected responses, either verbal or motor, leading to a solution. Thus, the length and width of the response, both spatially and temporally, is longer and more complex, like a sentence, a thought, a manipulation of various objects as in the performance part of the WISC (with the exception of Picture Completion, which by the present standards would qualify as a test of input). We also assume for the present purposes that this model applies to children older than three years and that two major

input (eyes and ears) and two major output (hands and mouth) are involved, as shown in Table 1.

Table 1

The Input Output Approach in Psychodiagnosis of Children:
Fundamental Assumptions and Basic Deductions

The Model




Expected Patterns

A. Normality: Reception $\geq$ Expression (Input $\geq$ Output)

B. Dysfunctions possible: Reception $\neq$ Expression

1. Vision $>$ Audition = Coordination $>$ Language

2. Vision $<$ Audition = Language Coordination

3. Vision = Audition $\lesssim$ Verbal $\neq$ Coordination

4. Vision $\neq$ Audition $\lesssim$ Verbal = Coordination

Intervening Variables

A. Cerebral dysfunctions

1. Lawful variability of indices

2. Consistency of patterns

B. Psychopathology

1. Random variability of indices

2. Inconsistency of patterns

(except for conflict areas)

Once both assumptions are made, the three major derivations are as follows: (a) in most normal children, reception is always greater than or at least equal to expression; (b) if audition is greater than vision, speech is greater than manual manipulation; (c) by the same token, if vision is greater than audition, manual manipulation is greater than speech.

Once we have this model, what do we obtain? In the first place, we need to recognize that children with some degree of brain damage should show more consistent and less variable patterns than emotionally disturbed children, whose mainstay would be inconsistent variability of patterns and indices. In

the second place, in terms of sexual differences, it is possible that toward the early preschool years, boys may be higher on visual input and on motor output than girls, who, would be higher on auditory input and on verbal output than boys. In the third place, diagnostically, socially deprived children may be higher on input than on output functions, while some types of brain damage, on the other hand, may affect input functions to a greater extent than output. Except for a greater variability of indices, emotionally disturbed children should not differ on input output functions from normal children. This prediction, however, should be qualified for type and degree of psychopathology. Autistic children, for instance, should show an input smaller than output, if their reactivity to the environmental stimulation is restricted, rigid, and selective. Their preferred mode of motor output, inferred by their unusual interests in objects, should be superior to verbal output. Schizophrenic children, if testable, on the other hand, might show an input higher than output because of their extreme overreactivity to environmental stimulation. Their relative output would be mostly verbal rather than motor as shown in Table 2.

Table 2

Hypothetical Diagnostic Classification of Children
According to an Input Output Approach

| Diagnostic Group | Tentative Summary Input | | Output | |
|---|---|---|---|---|
| | Auditory | Visual | Verbal | Manual |
| Sex Differences* | Boys < Girls | Boys > Girls | Boys < Girls | Boys > Girls |
| Normals | Average | Average | Average | Average |
| Superior | Above Average | Above Average | Above Average | Above Average |
| Defectives | Low | Low | Low | Low |
| Emotionally Disturbed | Variable | Variable | Variable | Variable |
| Brain Damaged | Low** | Low | Near Average | Near Average |
| Culturally Deprived | Below Average | Near Average | Low to very Low | Low to Below Average |
| Aggressive | Average | Average | Below Average | High to Above Average |
| Autistic | Low | High | Very Low | High Average |
| Schizophrenic | High Variable | Low | High | Low |

*Depending also on age.
**Depending on type of brain damage.

Mental deficiency would be described in terms of near equality and stability in receptive expressive functions. It would be differentiated from mental deficiency with brain damage in terms of smaller variability and specificity of functions and higher input. Aggressive children would show a superiority of output over input functions, especially in the motor area. In contrast to brain damaged children, their input functions should approach normality while the relationship between auditory input and verbal output would go in the opposite direction, auditory input near average, verbal output lower, visual input average, motor output above average, or higher than any other function.

From the viewpoint of test selection, this model allows first of all a classification of tests according to their position on the four major combinations of input output functions and both input channels. For instance, the Peabody Picture Vocabulary Test (PPVT) is based on both input channels but the output can be either verbal or manual (by pointing). Certainly this test is more weighted on input than, let's say, the WISC. The DAP uses auditory input (the instructions) and hand output. The TAT and Rorschach receive both auditory instructions but mostly visual information and would be classified as tests of verbal output. The Bender-Gestalt and similar figure reproduction tests would be tests of motor output. The Columbia Mental Maturity Test (CMMT) instead would be a test of visual input, just like the Raven Progressive Matrices. An example of this classification is shown in Table 3.

Table 3

Tentative Classification of Selected Children's Tests
According to an Input Output Approach

| Major Input Channels | Major Output Channels | |
|---|---|---|
| **Eyes** | **Hands** | **Mouth** |
| Columbia Mental Maturity Test (CMMT) | Wide Range Achievement Test (WRAT): Spelling and Arithmetic | WRAT: Reading |
| Organic Integrity Test (OIT) | ITPA: Motor Encoding | Rorschach |
| Perceptual Maturity Scale (PMS) | Missouri Children's Picture Series (MCPS) | Thematic Pictures (TAT, Michigan, CAT, Symonds) |
| Illinois Test of Psycholinguistic Abilities (ITPA) - Visual Decoding | Retention and reproduction tests* | Gray Oral Paragraphs |
| Raven's Progressive Matrices | Color Pyramid Test (CPT) | |
| **Ears** | **Hands** | **Mouth** |
| ITPA: Auditory Decoding | Right Left Discriminations | WISC: Verbal Scale |
| Auditory Discrimination tests | | |

| Eyes and Ears | Hands | Mouth |
|---|---|---|
| Peabody Picture Vocabulary Test (PPVT) and other picture vocabularies (Ammons Full Range Vocabulary Test and others) | Draw A Picture (DAP) | KTSA: Numerical Element (NE) and Symbol Pattern |
| WISC: Picture Completion (PC) | Frostig: Scales I, II, III, V | |
| | WISC: Performance Scale (except Picture Completion) | |
| | Kahn Test of Symbol Arrangement (KTSA): Objective Measures | |
| | Santostefano's Performance Tests of Personality | |

*Bender-Gestalt; Benton's Revised Visual Retention; Grahm-Kendall Memory for Designs; Minnesota Percepto-Diagnostic.

This classification suggests also some rules for battery construction provided we assume four major areas of functioning: (a) the intellectual auditory verbal, (b) the intellectual visual motor, (c) the educational, and (d) the emotional. From these combinations we can derive a long list of input output ratios based on tests, like in Table 4.

Table 4

Possible Intertest Comparisons among Dependent Variables
in Psychodiagnosis of Children
According to an Input Output Approach

A. Within Intellectual Measures

1. PPVT IQ/WISC-Voc IQ = Input/Output
2. CMMT IQ/DAP IQ = Eyes/Eyes Hands
3. WISC C/WISC PA = Ears Mouth/Eyes Hands
4. DAP IQ/WISC-Perf. IQ = Eyes Hands/Eyes Hands
5. DAP IQ/WISC-OA IQ = Eyes Hands/Eyes Hands

B. Within Educational Measures

1. WRAT - Reading Recognition/Gray - Oral Comprehension - Eyes Mouth/Eyes Mouth
2. Gray - Oral Comprehension/Gray - Writing - Eyes Mouth/Eyes Hands
3. Writing from Dictation/Writing from Sight - Ears Hands/Eyes Hands

C. Between Intellectual and Educational Measures

1. WRAT/WISC = Achievement Level/WISC Full IQ

a. Reading/Verbal

b. Reading/Perf.

c. Spelling/Verbal

d. Spelling/Perf.

e. Arith/Verbal

f. Arith/Perf.

g. WRAT-A/WISC-A

2. ITPA/WRAT

D. Within Sensory Motor Functions

1. Input Measures Alone

a. PMT/OIT

b. PMT/ITPA-Visual Decoding

c. OIT/ITPA-Visual Decoding

2. Input/Output Measures

a. OIT or PMT/Frostig IV

b. OIT or PMT/Frostig I, II, III, V

c. Frostig IV/Frostig I, II, III, V

d. ITPA Decoding/ITPA Encoding

e. Right Left Discrimination/ITPA Decoding and Encoding

f. Right Left Discrimination and Benton RVRT Right-Left Scores

E. Between Sensory Motor Functions and Intellectual Functioning

1. OIT or PMT/WISC Performance

2. OIT or PMT/WISC-PC

3. Frostig PQ/WISC Performance-IQ

4. Frostig PQ/DAP-IQ

5. Right Left Discrimination/WISC Verbal and Performance IQ's

F. Within Personality Measures

1. Rorschach/CPT = Eyes Mouth/Eyes Hands
2. Rorschach/KTSA-NE = Eyes Mouth/Eyes Hands Mouth
3. KTSA - Objective Measures/CPT = Eyes Ears Hands/Eyes Hands
4. Santostefano Performance Tests/MCPS = Eyes Mouth/Eyes Hands
5. Rorschach/MCPS = Eyes Mouth/Eyes Hands
6. Rorschach Form Level/MCPS-Conformity
7. Rorschach-Aggression/MCPS-Aggression

G. Between Intellectual Functioning and Personality Measures

1. DAP/Rorschach (scored for body image)
2. WISC-OA/Rorschach (scored for body image)
3. WISC-PC/Rorschach (mode of approach)
4. WISC Verbal Content/Rorschach
5. WISC-IQ/Rorschach Rs
6. DAP - same sexed figure drawn first/MCPS-MF
7. WISC-Verbal/WISC-Performance - Rorschach/CPT
8. WISC-Verbal/WISC-Performance = KTSA-NE/KTSA objective measures

H. Between Educational Personality Measures

1. WRAT/Rorschach
2. WRAT/CPT
3. WRAT/KTSA
4. WRAT/MCPA
   a. Reading-Withdrawal
   b. Arithmetic - MF
   c. Spelling-Conformism

The major empirical but not unsurmountable shortcoming in the application of this type of analysis to visual motor functions and emotional adjustment is the lack of age selected norms, which however are available in few tests of recent vintage like the Frostig and Illinois Test of Psycholinguistic Abilities (ITPA). Were we to have valid age selected norms for the Rorschach or other projective techniques, we could compare output from these tests with the output on other tests of personality and intellectual functioning.

The major issue that this proposal would naturally meet is its validity. How valid is this model, before accepting, even provisionally, its potential

clinical and diagnostic validity? This model has lead to the following empirical verifications which will be briefly summarized. More detailed descriptions of these studies will be presented elsewhere (L'Abate, M.S. in preparation).

Study 1. We used three samples of children from pediatric ($N$ = 56), neurological ($N$ = 41), and psychiatric ($N$ = 41) settings. In the first sample, Ammons Full Range Picture Vocabulary Test (FRPVT) was used as a measure of input. For the other two samples, the PPVT was used. Output was measured by extrapolating the Wechsler Intelligence Scale for Children (WISC) Vocabulary subtest to an IQ score. A difference score was obtained by subtracting the WISC Vocabulary IQ score from the PPVT IQ score. These different scores were our independent variables. Dependent variables were educational quotients from the WRAT for Reading, Spelling, and Arithmetic. In the first two samples whenever the FRPVT or PPVT scores were significantly higher (within one S D from the mean) or lower than the WISC Vocabulary IQ scores, the educational achievement in reading, spelling and arithmetic was lower. Whenever FRPVT or PPVT IQ scores were approximately equal to the WISC IQ scores, educational achievement was higher. This relationship was true in the first two samples for children of dull normal intelligence. In the psychiatric sample where the intelligence level was average, educational achievement was best predicted from WISC IQ scores than the PPVT. Output in samples of average intelligence would seem to be influenced by diagnosis, central dysfunctions or emotional disturbances.

The results of this initial study were sufficiently encouraging to investigate (Study 2) the role of sex differences in input output functions. However, in this pilot study the results were negative. We plan to continue this analysis with a greater number of children.

Study 3. This study was conducted to evaluate Tien's Organic Integrity Test (OIT) as a measure of visual input in its relationship to various measures of output (WISC Verbal & Performance IQs, WISC Performance subtests, DAP, Benton & MPDT). Since the OIT was found to correlate significantly only with age ($r$ = .55, $p > 105$) an analysis similar to that of the first study was conducted.

Two groups of children were separated on the basis of discrepancy scores between the OIT Perceptual Quotient and the DAP IQ scores. In one group the OIT PQ was higher than the DAP and in the other group lower. The WISC Verbal, Performance, and Full IQ scores were the dependent variables. In the PQ DAP group the intellectual level was consistently borderline. In the OIT DAP, WISC Verbal and Full IQ scores tended to fall in the dull normal range. The differences between these two groups were statistically significant ($p > .05$).

Study 4. The purpose of this study was to explore the relationship between visual input and motor output and vocabulary development in relatively normal boys and girls using group screening procedures. Visual input was measured through Raven's Progressive Matrices. Motor output was measured by reproduction of Benton's Revised Visual Retention Test (Form C) presented on a screen with a lantern slide projection with a 10 second period of presentation. Verbal output was measured by the Stanford-Binet Vocabulary administered in a written form in mimeo sheets. Considerable sex differences were found but as a whole vocabulary was more significantly related to the Raven than to the Benton, suggesting the importance of visual input in vocabulary development, for instance, reading.

Study 5. The purpose of this study was to test van der Castle Perceptual Maturity and the CMMS as measures of visual output in their relationship to

academic functioning and verbal and nonverbal intelligence as measured by the CMMS. Subjects were children from two public grammar schools in Atlanta. The two scales of visual input were unrelated to each other while the CMMS was correlated more highly with the nonverbal part of the California ($r$ = .55, $p$> .01) than the verbal ($r$ = .35, $p$>.05). Neither measures of input, however, correlated in any way to educational achievement as measured by the Weekly Silent Reader and Reading Readiness Tests.

Study 6. In this study we evaluated the ITPA's auditory and visual input measures in relationship to other measures of output (WISC, DAP, Frostig, and WRAT). As a whole we found that the ITPA auditory decoding was significantly related more to verbal output measures ($r$ = .63, $p$>.01) than to output ($r$ = .47), supporting the first deduction of our original model. The second deduction concerning visual input and motor output remained unsupported since visual input seemed equally related to either verbal and motor output. Some sex differences in this were found. In at least one other study we did find that visual input, as assessed by the CMMS (Hosford & L'Abate) was significantly lower (in the 70's) than measures of output (WISC IQ's within average limits) in children with learning deficits and possible neurological impairment.

Studies now in progress are concerned with the roles of ethnic origin and socioeconomic factors on receptive expressive functions, suggesting the probability that receptive functions may be more related to physiological factors while expressive factors are more dependent on age and on socioeconomic background (L'Abate, research in progress).

Further research of course will indicate the validity of this model whose main advantage lies in its testability. In conclusion it seems preferable to test deductions and find that they may be wrong rather than not test and assume that one is always right. Besides the advantage of testability, this model permits us to relate psychodiagnosis to empirical literature and to information theory broadly defined. However, the ultimate test of its usefulness will lie in its application to rehabilitation, indicating a greater degree of differentiation in rehabilitative procedures than it has been possible traditionally.

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## ABSTRACT

### TESTING ATTITUDES TOWARD PHYSICAL HANDICAP, STEREOTYPING AND OBJECTIVITY IN A PARTIALLY INTEGRATED ELEMENTARY PROGRAM

by

Eugenia G. Baker

#### Problem

With the growing interest in placing special classes for the physically handicapped on the regular school campus, there is need for study of other children's attitudes toward handicapped children.

In order to do this, new instruments to measure children's attitudes were developed. These needed to be sensitive to depth attitudes, appropriate for the school situation, and have school relevant content.

In this study, selected concepts relating to attitudes toward physically handicapped were empirically examined. The cripple stereotype was defined in terms of children's behavioral responses to the social stimulus of a physically handicapped child.

#### Method

The two especially designed tests, the Film Test and the Semantic Differential, were administered to 168 elementary school children in the fourth, fifth, and sixth grades. Some of the children from the special class for physically handicapped located in this school participated in regular class activities on a parttime basis. Factor analysis of the Semantic Differential data was used to test hypotheses relating to the differential modes of person perception employed by the nonhandicapped subjects in viewing self, peers, and handicapped children.

The Film Test presented contrasting peer group interactions. The Part I portrayal of a handicapped child followed the negative cripple stereotype. Student's responses were classified by judges as stereotyped, objective, and unscorable. The effect of sex, grade, and Film Test categories on Semantic Differential scores was assessed by a multiple discriminant function analysis.

#### Results and Conclusions

The factor analysis of the Semantic Differential data supported the existence of mildly favorable stereotype of the cripple. Two factors, "Dynamic Affect" and "Conventional Virtues" were identified. The first is associated with peer and self perception, the second with perception of the handicapped. The relationship of these factors with the factor dimensions identified by Osgood is discussed. The nature of this positive attitude which characterizes the popular stereotype of the handicapped was supported by the patterning of the Semantic Differential scales and the factor loadings.

The number of children who viewed the physically handicapped child objectively was greatest in the fourth grade, and significantly less in the

fifth and sixth grades. Stereotyping increased as the grade level became higher, but the greatest increase was found in the unscorable category.

Both the Semantic Differential and the Film Test elicited attitudes toward the child with deviant physique which describe him as immobile, passive and dependent. Such attitudes appeared to based upon preconceptions, which tended to restrict objective observation.

These findings suggest that the period between the fourth and sixth grades may be critical for attitude modification. Two implications may be drawn: (a) effective integration should be started in the elementary school, and (b) younger children typically have more objective attitudes, suggesting that integration should be started as early as possible.

## ABSTRACT


### THE INFLUENCE OF CORTICAL AND SUBCORTICAL LESIONS ON THE MEDIATION OF SUSTAINED ATTENTION IN CHILDREN

by

Peter A. Campanelli

This study investigated the effects of cortical and subcortical lesions on sustained attention in children in convulsive disorders. The samples of children used in this study were normal children and two groups of brain damaged children, the latter groups classified as having either focal or non-focal lesions of the brain manifested on electroencephalographic (EEG) recordings.

The total sample consisted of 60 children, ranging in chronological age from eight to 12 years. These subjects were categorized into three groups of 20 each as follows: (a) normal children who were not brain damaged, (b) focal children with convulsive disorders who were brain damaged and had EEG tracings displaying focal discharges, presumably cortical in origin and, (c) nonfocal children with convulsive disorders who were also brain damaged but had EEG records displaying diffuse hypersynchrony, presumably subcortical in origin.

Each subject used in this study demonstrated the following: normal near point vision, an intelligence quotient of 90 or better, academic grade placement appropriate for the life age, and reading level commensurate with academic grade placement. The brain damaged groups also presented a recent EEG record classified as abnormal focal or abnormal nonfocal in character.

The Continuous Performance Test (CPT) was employed as the instrument of choice to measure the sustained attention of each subject under these three conditions of room illumination: Condition 1 (ten foot candles), Condition 2 (zero foot candles), Condition 3 (ten foot candles, repeated). All subjects were tested for equal periods of four minutes each under the three illumination conditions, providing absolute (omission errors) and relative (commission errors) percentage scores for analyses.

Analysis of the results revealed no significant differences ($\alpha = .05$) between the mean values of each of the three groups relative to chronological

age, mental age, intelligence level, academic grade standing, reading level, and near point vision.

Significant differences were found between the three groups of children concerning absolute and relative scores on the CPT within and between illumination conditions. Quantitative differences were demonstrated between the normal children and the two brain damaged groups on the CPT for the three illumination conditions. More important, under the condition of minimal illumination (zero foot candles), the brain injured children with nonfocal lesions performed significantly poorer than the normal group and their brain damaged counterparts with focal lesions.

This latter finding suggests that children with cortical and subcortical lesions are affected differently when neurophysiological stress is enhanced under minimal levels of illumination during a task of sustained attention. The results support other investigators concerning the effects of specific site of lesion on sustained attention in brain damaged children when measured by the CPT.

## ABSTRACT

## INFLUENCES OF AN ADVANCE ORGANIZER ON LEARNING AND RETENTION OF MEANINGFUL VERBAL MATERIALS FOR EDUCABLE MENTALLY RETARDED AND INTELLECTUALLY NORMAL CHILDREN

by

John T. Neisworth, Robert M. Smith, and Stanley L. Deno

### Purpose

The present study was designed to compare the effects and evaluate the effectiveness of a brief experimental passage presented to educable mentally retarded (EMR) and intellectually normal students prior to their reading of subsequent detailed learning material. The experimental introductory passage, an "advance organizer," was constructed from considerations derived from D.P. Ausubel's subsumption theory.

### Subjects

Subjects consisted of 194 high school age EMR and 184 elementary school age intellectually normal children. Both groups had approximately the same mean mental age (ten years).

### Procedure

Four instruments were devised for the study: an objectively scored achievement test, a learning passage, a control introductory passage, and an advance organizer. The materials dealt with the topic of acoustics and the nature of sound.

The advance organizer was theoretically designed to provide the experimental subjects with a number of concepts to "subsume" (organize and include)

the more specific content of the subsequently presented learning material. The control introduction was written to provoke interest in the learning topic and did not meet the criteria for an organizer. All materials were written at the third grade reading level which was at or below the tested level of all subjects in the study. A replicated posttest only control group design was employed. Within each EMR and normal classroom, subjects were randomly assigned to organizer and control introductory treatments. There were, then, essentially two studies conducted: one employing EMR subjects with an experimental advance organizer and a control group, and one employing intellectually normal subjects. Children in both studies were of comparable reading and mental ages to make interstudy comparisons possible. All subjects took the same achievement test based on the learning material. This test was also administered two weeks later as a measure of retention.

## Results

The statistical analyses of EMR performances yielded:

1. On initial achievement and retention testing, no significant difference ($P > .05$) between organizer vs. control group means

2. No significant difference between initial vs retention test means of organizer or control groups.

Similar analyses of intellectually normal performances yielded:

1. On initial achievement and retention testing, a significant ($P < .006$) difference between organizer (the greater) vs. control group means

2. No significant difference between initial vs. retention test means of organizer or control groups.

## Conclusion

The finding that the organizer strategy did facilitate learning and retention for the normal but not for the EMR children, coupled with the comparability of both groups' reading and mental age means, suggests that the utility of organizers with children may be contingent on competencies not highly correlated with the reading and/or mental age variables. It is suspected, for example, that the instructional history of educable students is antagonistic to the advance organizer approach.

While prior advance organizer research has employed only intellectually normal adults, this is the first study to suggest the efficacy of advance organizers with children of normal intelligence. The study lends support to the findings of other investigations that the organizer strategy, as presently understood, does not facilitate EMR verbal learning.

ABSTRACT

A COMPARATIVE STUDY OF SELECTED EXPRESSED ATTITUDES, CONCEPTS AND INTERESTS OF RETARDED ADOLESCENTS

by

Stanley A. Winters

This is a report of a study dealing with the comparison of several selected expressed attitudes, concepts, and interests of adolescents attending a public school special program for the educable mentally retarded (IQ 50 to 75) with two groups of normal students--one of comparable chronological age and the other of comparable mental age. The major hypotheses were:

1. The pattern of attitudes, concepts and interests of mentally retarded adolescents differs from that of normal adolescents of comparable chronological age.

2. The pattern of attitudes, concepts and interests of mentally retarded adolescents differs from that of normal children of comparable mental age.

3. The pattern of attitudes, concepts and interests of mentally retarded adolescents tends to resemble the pattern of normal children more than the pattern of normal adolescents.

Sixty-six retarded teenagers (IQ 52 to 75) were matched with 66 normal adolescents (IQ 90 to 109) of comparable chronological age upon the bases of sex, race, and socioeconomic level. The retarded students also were matched with 66 normal children (IQ 90 to 109) of comparable mental age upon similar criteria. All of the students were interviewed indivudually by the investigator and asked the questions of a specially adapted Interest Inven ory.

The data obtained were placed in categories under each attitude, concept or interest investigated. The chi square technique was used to determine the statistical differences between the responses of the retarded and those of the normal groups.

The findings substantiated two of the hypotheses:

1. The pattern of attitudes, concepts and interests of the mentally retarded adolescents did differ at a statistically significant level from that of normal adolescents of comparable chronological age.

2. The pattern of attitudes, concepts and interests of the mentally retarded adolescents did differ at a statistically significant level from that of normal children of comparable mental age.

The third hypothesis, that the pattern of attitudes, concepts and interests of mentally retarded adolescents resembled that of normal children more than the pattern of chronological agemates was not substantiated, although the finding was in the hypothesized direction.

Other results suggested that the reading level of the mentally retarded did not influence their responses to the questionnaire. The pattern of responses of both the male and female normal teenagers differed from that of the

handicapped teenagers, but only the responses of the boys of the mental agemates varied significantly from the answers of the retarded.

## CHILD REARING ATTITUDES OF MOTHERS OF EMOTIONALLY DISTURBED CHILDREN

by

Anthony J. LaPray and Lester N. Downing

Educators in the United States are rapidly approaching the conclusion that they must assume the responsibility for educating not only the bright middle class child, but the blind, the deaf, the crippled, the mentally retarded, and the emotionally disturbed. Public and private groups have recently initiated many experimental studies, demonstration projects, and training programs to bridge the gap between sound mental health principles and typical classroom practice. The problems they face in accomplishing this task are enormous. Bower and Lambert (1961) reported that only ten thousand of the nation's half million severely disturbed children are receiving any type of help for their problem. In addition to these children, there are the children who have affectional, physical, social and adult model deprivations, children who are victims of unrealistic standards and expectations, and those resorting to antisocial forms of life to meet their needs. It has been estimated that one out of every five children in the public school has learning and/or emotional disability (Long, Morse & Newman, 1965).

In 1967, twenty-five special classes designed to meet the educational needs of emotionally disturbed children were established within the public schools of Utah. These twenty-five classes are servicing less than 220 of the approximately 5,600 serious disturbed children of public school age in Utah whose learning is affected to the extent that they are not profiting from regular classroom placement (Utah Special Education Report, 1964). Most school districts with established special classrooms for emotionally disturbed children also employ psychologists, psychiatrists and social workers as consultants to conduct group counseling with the parents of these children.

Most studies in the area of emotional disturbance have dealt with post facto analysis of adults in order to attempt to determine the etiology of their problems. There have been a few good clinical studies of families with emotionally disturbed members who are in contact with child guidance clinics or institutions for the mentally ill. However, evidence in child psychology suggests the child cannot be taught in isolation. If he is to learn to deal with his mental health problems, as well as his educational problems, his family must be involved.

The present study was designed to examine some of the factors that may contribute to the formation of the child's psychological emotional problems. The area singled out for investigation was that of maternal attitudes toward child rearing and family life of mothers who had children that had been diagnosed as emotionally disturbed.

The purpose of the study was to determine whether or not any differences existed between the attitudes toward child rearing and family life of mothers of emotionally disturbed children and mothers of normal children of the same age, living in the same community, and attending the same schools.

As used in this study, the term "emotionally disturbed children" referred to those children identified by the classroom teacher, the school social worker, and the school psychologist as having psychological problems of an emotional nature to the extent that they were unable to profit from education in the regular public school classroom. The term "normal children" as used in this study referred to those children who were attending regular public school classes and had not been diagnosed as emotionally disturbed or intellectually handicapped.

The study had two unique characteristics that distinguished it from previous studies conducted in the area of childhood emotional disturbance and parental attitudes: (a) The study was concerned with children who had been diagnosed as emotionally disturbed, but who in spite of this disturbance were still attending regular classes in the public schools, and (b) The mothers of these emotionally disturbed children had not been informed of the diagnosis of pathology in their children. These two characteristics would indicate that the degree of emotional disturbance of these children was not as great as the subjects used in previous studies.

## Method

This study was conducted in the Jordan School District, which comprises about three hundred and fifty square miles of the southern part of Salt Lake County, Utah. It is probably the most heterogeneous area in Utah in terms of the wide variety of people and industries available. There exists a wide variation in the socioeconomic levels of the various residents. It is a mixture of rural and urban communities with agriculture and copper mining being the major industries in the southern and western parts of the district and city commuters of the white and blue collar class making up the majority of the residents living in the northern and eastern areas of the district.

The school population was primarily Caucasion, with less than ten percent Spanish-American, Indian, and Negro children attending the public schools.

The experimental group for this study was composed of 90 mothers of emotionally disturbed children as defined by the school social workers and the school psychologists, who made the diagnosis of emotional disturbance with the use of social histories, psychological tests, interviews with children and interviews with their parents. The children were awaiting placement in special classes for the emotionally disturbed. All children diagnosed as emotionally disturbed were on the elementary level and were between six and 12 years of age. The control group was composed of mothers of children not diagnosed as emotionally disturbed, living in the same geographical area as the experimental group.

The major instrument used was the Parental Attitude Research Instrument (PARI), developed and published by Schaefer and Bell in 1958 as a result of their studies at the National Institute of Mental Health.

The Parental Attitude Research Instrument follows the format of prior scales by Shoben (1949), Mark (1953), and others. It involves the use of rather generalized third person statements about child rearing such as: "Children should be allowed to disagree with their parents if the children feel their own ideas are better," or "There is nothing worse for a young mother than being alone while going through her first experience with a baby." Four response alternatives are permitted: (strongly agree) (agree) (disagree) (strongly disagree).

Although the instrument has not as yet reached the stage of good predictive validity, the majority of the studies in the literature give evidence supporting the concurrent validity of this general approach to the study of parent child relationships, and to the Parental Attitude Research Instrument as a specific tool of research. In addition to the Parental Attitude Research Instrument, a questionnaire was used to obtain information about the mother, her family and her home. The data was analyzed by means of the t test, chi square and analysis of covariance. The .05 level of confidence was maintained throughout the investigation. The analysis of the data revealed some relevant although not marked differences between the experimental and control groups.

The objective in studying maternal attitudes involves the assumption that these attitudes are related to child behavior, and that the attitudes are basic in understanding the etiology of emotional disturbance in children. The results of prior research are mixed. It is evident that attitudes have some effect upon child behavior, but it is also evident that further research is very much needed to deliniate the variables.

The major hypothesis of present research was designed to explore specific maternal attitudes of mothers that did not know that their children had been diagnosed as emotionally disturbed. Based on this premise the following hypothesis was tested:

1. When comparing attitudes toward child rearing and family life of mothers having children diagnosed as emotionally disturbed with a control group of mothers of normal children, no statistially significant differences will be found between the two groups in responses given on the Parental Attitude Research Instrument to statements designed to determine the mothers' attitudes toward:

    a. suppression of sex
    b. comradship and sharing
    c. encouraging verbalization
    d. seclusion of the mother
    e. dependency of the mother
    f. fear of harming the baby
    g. fostering dependency
    h. marital conflict
    i. irritability
    j. excluding outside influences
    k. rejection of the homemaking role
    l. avoidance of communication
    m. ascendancy of the mother
    n. inconsiderateness of the husband.

Ancillary hypotheses that are tested were:

2. No statistically significant differences will be found between the attitudes toward child rearing and family life of mothers who had male emotionally disturbed as opposed to like attitudes of mothers who had female emotionally disturbed children.

3. No statistically significant differences will be found between the occupational level of the families of emotionally disturbed children and the occupational level of the families of normal children.

4. No statistically significant differences will be found between the

educational level of the mothers of emotionally disturbed children and the educational level of mothers of normal children.

5. No statistically significant differences will be found between mothers of emotionally disturbed children and mothers of normal children when compared on the total number of children in their families.

## Results

Significant differences and differences that approach significance were found in some of the attitude measures of the Parental Attitude Research Instrument. The most striking difference was that the mothers of emotionally disturbed children differed significantly from the mothers of the normals in their feelings toward their husbands. The mothers of emotionally disturbed children felt that their husbands were inconsiderate of their feelings, actions, and ideas; but no differences existed in the area of marital conflict. In the area of "avoidance of communication" statistical significance was approached. The combination of these three variables could lead to the conclusion that consciously these mothers with emotionally disturbed children felt that their husbands did not care enough about them, or about their children; that the mothers had not only communication problems with the children, but with the husbands as well, but they could not consciously accept this fact. Mothers of the emotionally disturbed children also had a tendency to foster dependency among their children. Could it be that these mothers were attempting to compensate for inadequate marriages?

Significant differences were also found between the attitudes of mothers having male emotionally disturbed children and mothers having female emotionally disturbed children. The mothers having male emotionally disturbed children tended to feel that their husbands were even more inconsiderate than the mothers of the female emotionally disturbed children. In addition, there was a tendency for the mothers of male children to approach the conscious conclusion that they did have marital problems. These mothers may tend to take out the hostility they feel toward their husbands on their male child. If this is true, this displaced hostility could be a powerful factor in the etiology of the male child's pathology.

Other significant differences existed in the size of the family from which the children came. No differences in pathology were found for families with only one child. The greatest percentage of normal children came from families in which there were two or three children, with an increasing percentage of pathology as the number of children in the family unit increased. For this sample of mothers there was a strong indication that the tendency toward large families was accompanied by a tendency toward childhood emotional disturbance. Significant differences were also found between the occupational level of the parents and the incidence of emotional disturbance of their children. The greater incidence of emotional disturbance occurred in children whose parents were in the professions (teachers, social workers, lawyers, physicians, etc.).

The least incidence of emotional disturbance occurred in the children whose parents were in the laboring occupations (mine workers, waitress, construction workers, etc.). The interesting thing about this finding was that logically it would follow that if there was a difference in the occupational levels there should be a difference in the educational level of the two groups. This was not the case; differences in the educational level were not even significant at the .10 level. Popular professional opinion has held that

the incidence of emotional disturbance is greater in children from the lower occupational levels. The present study did not bear this out. No real explanation can be drawn from the analysis of the data for this finding.

## Discussion

The findings of this study suggest some possible conclusions about maternal attitudes and the etiology of emotional disturbance. The conclusions are probably best stated in the form of questions:

1. Is the child's pathology due in part to the attitudes of the parents toward the child and toward each other, with the mother having definite feelings of hostility toward the father, not being able to accept these feelings at a conscious level, and not being able to communicate well with either the children or the father?

2. Could it be that the professional nature of the father's occupation causes him to obtain satisfaction from his work, while the laboring father obtains this satisfaction from his family?

3. Could it be that the mother compensates for the lack of attention given her by a husband who is "married to his work", by attempting to obtain more love and dependency from her children and by the production of more children to obtain more compensated love?

This research is not predictive in nature, and individual implications cannot be made from it. It is doubtful that attitude instruments such as the PARI will ever obtain such validity that they can be used in the same proported predictive ways as personality inventories such as the Minnesota Multiplasic Personality Inventory (MMPI), but this should not prohibit their use in attempting to understand feelings, emotions, and concepts that go into the makeup of the intangibles we call attitudes.

This study could have considerable value in attempting to understand some of the variables involved in raising and educating children, whether they are emotionally disturbed or normal.

The schools must accept the responsibilities of educating not only the child but the adult as well, not only in the traditional classroom subjects but in any subject that will make the future citizens of our society better able to meet the increasing demands placed upon them.

Courses could be established that would encourage better communications between parents and children and between husbands and wives.

Parental attitudes are learned behaviors and as such it is hoped that they can be taught and/or modified to give attitudes that will enhance the booming business of parenthood.

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ABSTRACT

A METHOD OF OBSERVING CLASSROOM BEHAVIOR OF EMOTIONALLY DISTURBED CHILDREN

by

John S. Werry and Herbert C. Quay

The measurement of emotional disturbance in children has two broad facets (a) diagnosis of emotional disturbance or differentiation from normality for purposes of treatment such as placement in special classes for the emotionally disturbed, and (b) assessment of change in an emotionally disturbed child's condition, particularly as a function of treatment. The authors describe a technique developed at the University of Illinois for the measurement of classroom adjustment of elementary school children by means of direct frequency counts of a number of behaviors, some deviant and some work related. The technique also provides some information on teacher pupil relationship in terms of the frequency and nature of contacts. An advantage is that the technique can be performed by a relatively unskilled observer without any professional experience. Experience with the instrument in both regular and special classes (for the emotionally disturbed) has shown it:

1. To be of satisfactory interjudge reliability

2. To have value as a dependent variable measure of particular therapeutic interventions such as medication, use of reward systems, etc.

3. To be useful as a general instrument to assess a child's progress in a special class setting and the success of his rehabilitation into a regular class

4. To hold potential as a diagnostic instrument for discriminating between normal and emotionally disturbed children.

## ABSTRACT

### DEVELOPMENT AND EVALUATION OF AUTOINSTRUCTIONAL PROGRAMS IN ARITHMETIC FOR THE MENTALLY HANDICAPPED

by

Conwell Higgins

### Problem

The overall purpose of this study was to develop audiovisual equipment and materials for teaching educable mentally handicapped (EMH) children selected arithmetic concepts and to evaluate the instructional programs.

### Rationale

The strategies of programed instruction and operant conditioning derive their theoretical rationale from Skinner's behavioral model of learning. Both strategies are designed to elicit criterion behavior. However, in the linear instructional programs developed in this study, the behavior is modified rather than shaped. The basic premise of programed instruction is that a concept is in the subject's repertoire if the behavior contingent upon an understanding of the concept is elicited.

### Hypothesis

Programed instruction and conventional classroom instruction are equally effective in teaching selected arithmetic concepts to EMH children. The null hypothesis is as follows: There is no difference in the effectiveness of programed instruction and classroom instruction in teaching selected arithmetic concepts to EMH children.

### Procedure

The AVM System consists of 21 programs and the AVM Desk. The effectiveness of the System was determined by four pilot studies. This abstract deals only with Study I in which the experimental design was a Pre Post combined with a Post only, together with a Post Post to study retention.

### Results

The total error scores, Pre Post combined with Post only, are presented in Table 1.

Table 1. Pre Post Combined with Post Only
Total Error Score on the Three Units

| | | Pretest | | | Posttest | | | Change | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ss | N | $\bar{x}$ | $\Sigma x$ | $\Sigma x^2$ | $\bar{x}$ | $\Sigma x$ | $\Sigma x^2$ | $\bar{x}$ | $\Sigma x$ | $\Sigma x^2$ |
| $E_1$ | 12 | 76.1 | 913 | 77373 | 39.8 | 476 | 26104 | 36.3 | 435 | 16927 |

Table 1. (Continued)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| $E_2$ | 12 | | | | 38.1 | 457 | 20903 | | | |
| $C_1$ | 16 | 84.2 | 1348 | 119240 | 75.6 | 1210 | 101432 | 8.6 | 138 | 3536 |
| $C_2^1$ | 9 | | | | 70.8 | 637 | 48619 | | | |

Interaction $t = .79$ $df = 45$ $p$ = N.S.

Pre Post Change ($E_1$ & $C_1$) $t = 6.27$ $df = 26$ $p < .05$.

Post Only ($E_2$ & $C_2$) $t = 12.20$ $df = 19$ $p < .05$.

The teaching effectiveness of the AVM System was significantly superior to the conventional classroom instruction.

With respect to retention, both groups maintained the concepts taught and continued to learn the concepts following treatment. The null hypothesis: There is no difference in the effectiveness in teaching selected arithmetic concepts to EMH children by programed instruction versus classroom instruction, was rejected.

## Limitations

It was demonstrated that trainable mentally handicapped children learned little in the programs of sets, elements, and matching one to one.

The AVM System is not commercially available. However, the system is in public domain and is deposited at the Office of Education.

## Implications for the Education of the Mentally Handicapped

The implications of this study are:

1. More simple and more complex prearithmetic and arithmetic concepts need to be programed.

2. The procedure and system may also be effective in teaching other kinds of handicapped children arithmetic concepts.

3. The procedure and system may be effective in teaching EMH children other visual and auditory discriminations that are crucial in early reading programs.

4. Other evaluative studies need to be conducted to determine the effectiveness of the system when used under different conditions and procedures.

ABSTRACT

THE PERFORMANCE OF GOOD AND POOR BRAILLE READERS
ON CERTAIN TESTS INVOLVING TACTUAL PERCEPTION

by

Lawrence H. Weiner

Purpose

The primary purpose of this study was to investigate tactual perception of good and poor braille readers on certain selected tests. A secondary purpose of this research was to provide a basis for the conduct of further research into the many problems encountered in the reading process of the blind with the hope that information could be gleaned to better understand reading for the blind and its pedagogical implications.

Method

Two groups of children from grades two through six, 25 children in each group, were selected on the basis of the following requirements: (a) legally blind before eighteen months of age, (b) nonbrain injured, (c) residence in schools for the blind, and (d) Hayes-Binet intelligence quotients of no lower than 85. One group of 25 children was selected as the poor readers on the basis of achievement of one grade or lower than present grade level on the Stanford Achievement Test paragraph meaning section. The good readers were selected by achievement at grade level or higher on this same test. Both groups were matched on mental age, chronological age, and grade placement. All children were given the following tests: (a) the simple sorting test, (b) the simple figure background perception test, (c) the simple matching test, (d) the complex sorting test, (e) the complex figure background perception test, and (f) the drawing test. The tests were designed by the author and given in this order. Statistical analysis of significance of difference was made through use of the Fisher t test. Additional statistics were computed to investigate the influence of mental age, chronological age, intelligence quotients, and reading achievement on test performance. Also, sex differences were examined.

Conclusions

The t tests yielded the following results:

1. There was no statistical significance of difference between the two groups on the simple sorting test.

2. There was no statistical significance of difference between the two groups on the simple figure background perception test.

3. There was no statistical significance of difference between the two groups on the simple matching tests.

4. A significant difference was found between the two groups on the complex sorting test.

5. Significance of difference was found between the two groups on the complex figure background perception test.

6. A significant difference was found between the two groups on the drawing test.

The correlations between each of the test and the four variables of mental age, chronological age, intelligence quotients, and reading level within each group yielded no significant or definitive trends. In addition, no significant sex differences were found within each group.

It was concluded that none of these above mentioned factors influenced the differences found between the good readers and the poor readers on the complex tactual perception tests. It was suggested that factors such as differences in neural sensitivity in the finger tips, and differences in gross or fine motor coordination were possible explanations for the test differences. It was also considered that tactual perception may be a skill in isolation of influential factors.

Inasmuch as this research was a pilot study, the need for additional research to further investigate these factors was pointed out. The possibility of the refinement of the test instruments was mentioned as worthy of research so that they may be developed as a reading readiness test for use with blind children. Finally, the need for reproduction of this study with more stringent controls and larger groups of subjects was indicated.

## ABSTRACT

### A STUDY IN THE USE OF PROGRAMED INSTRUCTION IN TEACHING ADDITION AND SUBTRACTION TO INTERMEDIATE LEVEL EDUCABLE MENTALLY RETARDED PUPILS

by

Gordon F. Johnson

This experiment compared the results obtained from two groups of educable mentally retarded subjects using programed arithmetic instruction with a similar group using teaching lesson plans. The sample consisted of 72 subjects with IQ's of 49 through 80, Chronological Ages of 108 through 166 months, and with Mental Ages of 71 through 130 months. Group A studied from a program designed by the investigator, while Group B studied from a commercially developed program, TMI-Grolier's Elementary Arithmetic: Addition and Subtraction Facts. During the ten weeks of study, Groups A and B alternated their programed textbook sessions with teaching lesson plans on two days every week. Group C studied from teaching lessons exclusively, which had been specifically prepared for this study.

Each of the groups was limited to a 25 minute arithmetic period each school day. Parallel forms of sections from the California Arithmetic Test were used as the criterion instrument to assess achievement in addition and subtraction skills. All subjects were administered one form of the criterion test as a pretest of prior knowledge; the alternate form was administered upon completion of the study.

The results of this experiment tend to support the premise that programed

instruction, when alternated with teaching lesson plans, can produce substantial differences in learning:

1. The observed difference between the mean gain was significant at the .01 level in favor of Group A.

2. The observed difference between the mean gain scores for the lowest quartile of Group A and Group C was significant at the .01 level in favor of Group A.

3. The observed difference between the mean gain scores for the lowest quartile of Group B and Group C was statistically significant at the .01 level in favor of Group B.

Evidence suggests that the use of appropriately programed materials, when used in combination with teaching lesson plans, may be more effective with the educable mentally retarded than the use of conventional lesson plans alone. The retarded child appears to adapt to programed instruction and makes as much or more progress through these approaches as he does through conventional teaching methods.

## "SPONTANEOUS" IMPROVEMENT IN EMOTIONALLY DISTURBED CHILDREN

by

John P. Glavin

### Problem

Most programs for emotionally disturbed children have been based on the belief that the most effective way of preventing serious emotional problems is the early identification of the potential or actual emotionally disturbed child followed by the necessary therapeutic intervention.

This approach was characterized most explicitly in the California Project (Bower, 1960; Lambert, 1963). Their basic strategy was to improve the accuracy of teacher judgments through the use of standardized measurement techniques, supplemented by peer and self measures of children's adjustment. By this method they proposed that an effective and economical early detection program could be accomplished in the schools. They stated that school programs which aimed to develop personality and build academic achievements of such pupils were increasingly inclined to break down following the early indications of an evolving problem, and that "...for early identification to be effective, we cannot wait until we are certain that a long term behavior problem is in the making; we must act at the first signs of difficulties (p. 6)."

Previous studies have pointed out that surveys of children may expect to find that five to 20 percent manifest signs of emotional disturbances, but little is known specifically about the children or the range of services that will be required to help them. It is to be expected that some of the emotional disturbances reported in single surveys will disappear within a relatively short period of time and require no special services. Others, however, may progress to firmly fixed patterns of disturbed behavior.

The present study investigated spontaneous improvement in children who had been identified as emotionally disturbed but who had not had special

educational or psychiatric care. It questioned the basic assumptions that had been mentioned in connection with early detection programs. It proposed a test of the hypothesis that children who were identified as having problems would continue to manifest such problems over a period of several years, when they did not receive any formal treatment.

## Related Research

Past studies have fallen primarily into two groups: those which used a screening device to measure emotional disturbance and then used either post or prior criteria such as achievement scores, delinquency records or clinical judgment in an attempt to validate the original screening index, and those which attempted to compare a treatment group with a control group. Both methods have disadvantages which will be elaborated upon.

### Screening Against a Criterion

While many methods had some validity for identification of emotionally disturbed children, no unanimously accepted validity criterion for the evaluation of early identification indices existed. Their designers had to rely on one or more of the ordinary definitions of mental health or mental illness.

In 1960, Bower reached the following conclusions related to the validity of classroom screenings:

1. Children's judgments of other children's personality were surprisingly accurate and predictive.

2. Teacher's judgments of emotional disturbance were very much like the judgment of clinicians.

3. The differences between emotionally disturbed children and their classmates increase in succeeding grade levels (p. 62).

The basis for the above conclusions by Bower were the following. On a peer rating device children tended to choose emotionally disturbed children for hostile, inadequate or negative roles and did not select them for positive roles. Classroom teachers rated 87 percent of the clinically known emotionally disturbed children as poorly adjusted. Finally, emotionally disturbed children achieved significantly lower scores on reading and arithmetic tests and these differences between the disturbed children and their classmates increased as the children progressed in school.

The basic supposition behind the association between adjustment and achievement (Bower, 1960; Lambert, 1963; Stennett, 1966) has been that the better adjustment, resulting from the treatment of a problem, is reflected in better academic achievement. Using such measures requires an unsupported inference on the part of the researcher, namely, that the observed achievement test scores do reflect change in adjustment. Other studies (Buswell, 1953; Wolf, 1965) have cast doubt upon the validity of the supposition that declining academic grades may signify poorer adjustment.

The studies reviewed have suggested that the use of school achievement as a criterion poses many problems. Bower's study (1960) and others indicated that teacher ratings, self descriptive data, and peer ratings, when combined, gave the clearest, most comprehensive, and most economical picture of the adjustment status of children. Therefore the present study used such an index

for both pretest and posttest criteria. Even though the research presented previously made no claim for the ultimate validity of the screening devices used in this study, there were enough positive findings to indicate that such a screening procedure showed promise in a program of early identification.

Outcome Comparisons

The Levitt study (1957) points out that past research, using defector groups from psychotherapy as a baseline, has not supported the belief that psychotherapy is effective with children. Levitt suggested that research on the comparability of defector control groups is conflicting, but that it appears to be one appropriate means of providing a baseline of change in the absence of treatment.

Hood-Williams (1960) questioned the use of waiting list defectors by Lehrman (1949) and Witmer (1942) and accepted by Levitt (1957), as having serious drawbacks. After criticizing the use of a waiting list control group, he said that "...the literature contains no studies where the controls have been obtained by any other method...(p. 84)."

It seemed, then, that although nontreated controls would improve experimental designs, their use in the evaluation of continuity and intervention studies has encountered serious obstacles. These difficulties had been especially noticeable in research on clinic populations, where nontreated controls have never been used to this writer's knowledge. Most current psychotherapy research consists of comparisons of the pre- and posttherapy status of a single treatment group or comparisons of two or more groups, using different methods of treatment. One technique may be found superior to the other or may report differential change in patients, but the failure to include nontreated controls leaves crucial questions unanswered.

There is a study in progress which has circumvented many of the above mentioned drawbacks. The Onondaga County School Boards Association (1961) has instigated a followup of problem children in elementary schools. The design of their project to identify persistent problems involves three teacher identification surveys at two year intervals. The Onondaga Study has reported that of 515 children classified in 1961 by teachers as emotionally disturbed, 31.1 percent of the original group were again labeled as emotionally disturbed in 1963, (McCaffrey, 1963).

The results of the Onondaga Study have recently received support from the Buckinghamshire Child Survey (Shepherd, Oppenheim, and Mitchell, 1966). This study reports a comparison between a group of 50 children attending child guidance clinics and a group of nontreated children matched by age, sex, and degree of deviant behavior. The matched group was taken from a representative one in ten sample of supposedly healthy children attending local authority schools. The results indicate that referral to a child guidance clinic is related as much to parental reactions as to morbidity in the children, and, secondly, that approximately two-thirds of both groups improved over a two year period.

In contrast to the two previous studies, Stennett (1966) concluded that a significant number of children identified as emotionally handicapped were not likely to resolve their adjustment problem without help. His conclusion was based on the results of an initial screening and three subsequent investigations using a Bower type screening procedure similar to the one used in this study. He found an 85 percent persistence rate of emotional disturbance after one year and a 40 percent persistence rate after three years, but he minimized the

latter finding as due to his use of an abbreviated screening technique for his last screening.

In summary, a review of the research of followup studies using screening against a criterion and followup studies using outcome comparisons has pointed out the conflicting results obtained by the different approaches. Studies which screen against a criterion generally assume that emotionally disturbed children will become worse unless help is obtained; however, these studies rely on the possibly misleading inference that there is a direct relationship between emotional adjustment and either a prior or posttest criterion such as school achievement. Studies using outcome comparisons have generally found that the majority of emotionally disturbed children "spontaneously improve" over time, but their results have been criticized for several reasons the foremost of these being the uncertain influence of the availability of future treatment on the disturbed child's status. Finally, three studies, which have circumvented many of the objections attributed to criterion studies and outcome comparison studies studies, have shown conflicting results. The Onondaga Study (1961) and the Buckinghamshire Study (1966) suggest that the majority of disturbed children improve without intervention, while Stenett's study (1966) concludes that intervention is necessary for most of the disturbed children.

## Hypothesis

The present study used a Teacher Peer Self screening procedure for both pretest and posttest criteria. This procedure reduces the need to make inferences about the posttest criterion such as Bower's use of school achievement. Since the present study is concerned with nontreated emotionally disturbed children whose first screening results had not been made known to anyone, the uncertain influence of the promise of future treatment on the disturbed child's status was circumvented. Thus, criticism leveled at studies using one of the defector or waiting list approaches is not applicable.

The major objective of this study is to investigate spontaneous improvement in children who had been identified as emotionally disturbed, but who have not had the help of any special educational or psychiatric care. It questions the basic assumption underlying early detection programs that the majority of childhood problems would continue, or become worse if left untreated. The hypothesis to be tested is that a majority of children identified as disturbed will improve without treatment.

## Method

In 1962, three elementary schools in the Anderson County School System of Tennessee were extensively screened. The screening method used sociogram techniques in classrooms, the California Test of Personality, and individual ratings of the five best adjusted and five poorest adjusted pupils by their teachers. This screening battery was administered to all children in grades two through five: a total of 773 children. The children included in this survey had moved to fifth through eighth grades, respectively, by the time of the second screening.

The independent variable to be studies was the effect of time, approximately a four year interval, upon the psychological status of children who had previously been identified as emotionally disturbed but who had not had the use of special educational or psychiatric services. The results of the first screening were not made known to the individual schools or children.

## Instrumentation

The approach to identification of emotional disturbance used in this research employed a 25 point Teacher Peer Self index, which was administered prior to and after approximately a four year interval. Teachers were asked to complete the rating sheet as to whom they considered to be their five best adjusted and their five poorest adjusted children. No definitions of emotional disturbance or adjustment were given to the teachers. Pupils were asked to complete a sociogram form requesting them to choose their three most liked and their three least liked classmates. The children were told beforehand that this information was confidential and that no school personnel or others would see their choices. The peer nomination forms were distributed and collected by the research assistant rather than the classroom teacher. To minimize spelling difficulties, the teachers said all children's names and wrote them on the chalkboard. The California Test of Personality was administered according to the instructions in the test manual. Teachers were requested beforehand to supply the names of all children reading below a fourth grade level. The test was read to this group of children while a monitor assited those children who needed further help.

While teacher selection brought an automatic addition or deduction of four points, both the peer rating and the California Test of Personality were scored from one to four points, the amount depending upon the extremity of the subtest score.

In order to secure information as to whether any type of intervention has been attempted, such as special education classes, referral to a child guidance clinic, psychotherapy, or other methods, the parents were requested to a complete a form which contained questions covering many extraneous areas in addition to their child's mental health, This approach was used so the parents would become neither alarmed nor anxious. Also, after the teachers completed their ratings, they were requested to supply the names of pupils who had received any type of intervention, i.e., help of either a special educational or psychiatric nature. "Treatment" is used in the present study to pertain to the more limited concept of only psychiatric care.

## Results

### Scope of the Study

Only the major results will be presented. A more detailed analysis is reported elsewhere (Glavin, 1967).

The population of 508 fifth through eighth grade children in 1966 represents 65.8 percent of the original cohort of 773 children in the second through fifth grades in 1962. The remaining 34.2 percent moved out of the county, transferred to another school system within the county, or were second grade children in 1962 who repeated a grade at some time between 1962 and 1966. The children who had been held back in other grades at some time during the four year study period comprised 4.4 percent of the original 1966 cohort exclusive of the second grade repeaters. The cases of children with no second screening were largest in the second grade and decreased with each succeeding grade.

### Children Who Were Reported as Emotionally Disturbed

In the initial group of 733 children who completed the first screening,

there were 100 (70 boys and 30 girls) who were screened as emotionally disturbed in 1962. The 70 boys so designated comprised 17.3 percent of all boys in the group; the 30 girls comprised 8.1 percent. The overall incidence of children classified as emotionally disturbed was 12.9 percent. The greater number of boys in the cohort inflated the overall percentage of emotional disturbance somewhat.

Emotionally Disturbed Attrition Cases

Before reporting on the persistence of emotional disturbance from 1962 to 1966, some study should be given to the 54 percent of the initially designated emotionally disturbed children who were not present at the second screening, i.e., the attrition cases. This rate is considerably higher than the 34 percent attrition rate for the total sample of 773 children followed up after a completed first screening. Without further knowledge the discrepancy between the two rates of attrition would suggest the possibility that the followup cases of emotional disturbance represents a biased sample. Information was requested from the school authorities and mental health facilities in Anderson County concerning the 54 children designated as emotionally disturbed initially but who were not available for the second screening. Fortunately, information was available for all but one child.

Ten cases of the 53 disturbed children who were not followed up but for whom information was available seemed likely to have persisting emotional problems. One girl had dropped out of school because of pregnancy, while three children had failed a grade twice. Six children were in special classes with two of them having moved out of the county. One child was in a special class because of minimum brain damage while another boy had been returned to a regular classroom. The remaining four children were in special classes for the educable mentally retarded (EMR).

Of the 54 emotionally disturbed children who did not take the second screening, only five seem to have persisting emotional problems according to their histories, while four children in special EMR classes were of questionable status, and no information was available concerning one child. In addition, three children eliminated from this study due to name confusion were screened as nonemotionally disturbed at the second testing, if the matchings were correct. Thus, it is unlikely that the high attrition rate of the emotionally disturbed has led to a biased sample among the remaining 46 emotionally disturbed children who completed a second screening in 1966.

Persistence of Emotional Disturbance

After eliminating the three cases who received intervention there were 13 (six boys and seven girls) in the combined group of 43 children reported as emotionally disturbed in 1962 who were so designated again in the second survey of 1966. They comprise 30 percent of the original group of 43 children described as emotionally disturbed in 1962 and who had not received any type of intervention.

Children in the four lowest categories on the initial screening show fairly equal amounts of mean change. This would suggest that if some point lower than the arbitrary cutoff point of seven had been previously decided upon, this would still result in a comparable percentage of persistence of emotional disturbance, as was reported in this study. For example, instead of the persistence rate of .30 found with a cutoff score of seven as used in this study, the use of a cutoff score of six would have resulted in a .21 rate of persistence while a cutoff score of five would have yielded a persistence rate of .17.

A comparison of the first screening scores of the initially designated emotionally disturbed children by groups of changed versus nonchanged on the second screening was made. The t test revealed no significant difference between the two means. This suggests that the initial score on the first screening is not a major factor in predicting a child's future adjustment category.

## Effects of Regression

One problem in studying the persistence of emotional disturbance is that the changes in (extreme) scores between tests of those children designated as emotionally disturbed on the initial screening may be partly attributed to a statistical regression toward the mean. Lord's (1956) multiple regression procedure was used to calculate the estimated true gain (G) between screenings for each person. This model is designed to take into account regression effects resulting from errors of measurement. For each child having completed both screenings G was calculated by the formula: $\overline{Y} - \overline{X} + b_1 (X - \overline{X}) + b_2 (Y-\overline{Y})$.

Each child's estimated true gain score and his actual gain score were then plotted against his pretest score. The mean actual score changes are greatest at both extremes on the second screening. Those children having an initially poor adjustment score showed the greatest actual gain, while children scoring high on initial adjustment tended to have the greatest actual loss on the second screening. Much of this apparent gain simply reflects error of measurement, as the estimated true gain change was not nearly as spectacular as the actual scores.

The mean estimated true gain scores of each of the emotionally disturbed score categories showed consistently greater gain than the mean estimated true scores which occurred for each of the equally extreme score categories for the best adjusted children. A t test was made on the differences of estimated true change scores between the initially designated best adjusted and emotionally disturbed categories. The resulting t test was significant at the .05 level, indicating that the emotionally disturbed children showed greater change toward the mean than did the best adjusted group.

A second method of examining regression effects was undertaken to determine if the regression factor accounted for all or most of the 70 percent change between screenings for the initially designated emotionally disturbed children. The persistence rate of emotional disturbance was contrasted to the equally extreme scores of the best adjusted children on the first screening who remained in the same adjustment category on the second testing.

The null hypothesis, that the proportion of best adjusted children who changed out of the category was equal to the proportion of emotionally disturbed who changed out of the category was tested in a four fold chi square test of independence using Yates correction. The chi square (3.40) approaches the .05 level of significance (3.84) with one degree of freedom.

## Predictive Ability of Screening Instrument

Some interest attaches to obtaining an approximate confidence interval for the proportion of persons designated as emotionally disturbed on the initial screening who are classified as nondisturbed on the followup testing (.70). The confidence interval was derived from the approximation given by Hays (1963, p. 291). It was found that the chances are 95 in a 100 that the percentage of initially emotionally disturbed children who will not be screened as emotionally

disturbed following a four year interval is between 54.9 percent and 81.8 percent.

## Discussion and Conclusions

### Analysis of Major Results

The most crucial question this study attempted to answer concerned the continuity of emotional disturbance in nontreated children. The 30 percent persistence rate found agrees with past studies which used therapy dropouts or some other group as controls. There was a 95 percent probability that future studies of the persistence of emotional disturbance for the same four year period using children of the same age would find that between 55 percent and 82 percent of the nontreated children would have changed categories by the time of the second screening. This confidence interval roughly coincides with the range of results reported by past clinical studies.

The persistence of emotional disturbance was examined according to the severity of initial screening score. The mean amount of change was approximately the same for the four lowest of the five score categories below the cutoff point. This would suggest that if some point lower than the arbitrary cutoff point of seven had been previously decided upon, this would still have resulted in a comparable percentage of persistence of emotional disturbance. The *t* test revealed no significant difference between the initial mean scores of the changed and nonchanged emotionally disturbed categories, which suggests that the extremity of a score from the cutoff point is not a major factor in predicting a child's future adjustment category.

The problem of regression toward the mean was examined in two ways. First, Lord's multiple regression procedure (1956) was used to calculate the estimated true gain or change between screenings for each student. The differences on the second screening between the mean estimated true gain scores and the mean actual change scores are greatest at both extremes of adjustment. The estimated true gain scores tended to cancel out the extreme changes shown by the actual scores of the emotionally disturbed and the best adjusted children at the time of the second screening; therefore, the changes in adjustment categories between screenings for both extremes on the first screening can be partially attributed to a regression effect.

For each of the emotionally disturbed score categories, the mean estimated true change scores showed consistently greater gain than the mean estimated true change scores which occurred for each of the equally extreme, best adjusted, score categories. A statistical test of the differences of estimated true change scores for the well adjusted and emotionally disturbed groups on the second screening was significant at the .05 level, indicating that the emotionally disturbed group showed a greater change toward the mean.

The null hypothesis for the second method of examining the regression problem was that the proportion of best adjusted children who changed out of the category was equal to the proportion of emotionally disturbed who changed out of their original category. The chi square approached the .05 level of significance. For purposes of future investigation it may be advisable to take the position that there may indeed be a greater change in the emotionally disturbed children on the second screening. This tentative conclusion suggests that the regression factor only accounts for part of the 70 percent change between screenings for the initially classified emotionally disturbed children.

One possible explanation for the proposed difference in change rates between the two extreme adjustment categories is that there are two tendencies at work in children. One tendency would be to integrate those behaviors which are rewarded in some way into a durable and stable arrangement of habits; this pattern should be found most often in children designated as best adjusted. A second tendency would be the opposite--the tendency to respond variably when behavior is not rewarded, which would result in the breakdown of old forms of habit patterns and their replacement with new ones. In general, the second tendency should be found more frequently in emotionally disturbed children. However, it should be emphasized that this reinforcement paradigm is concerned with tendencies rather than absolutes. In the everyday world inconsistent reinforcement of both deviant and well adjusted behavior is likely to happen.

Wolpe (1958) has included spontaneous improvement within his theory of therapy based on reciprocal inhibitions. He suggests that neurotic habits can be overcome through inhibiting the responses by simultaneous antagonistic responses. He believes that this phenomenon might be expected sometimes in the ordinary course of life.

Eysenck (1960) believes that the time of spontaneous improvement is similar to the typical extinction curve observed in learning situations. That is, a learned response declines in strength if it is repeatedly evoked by the conditioned stimulus but is not followed by reinforcement. Eysenck considers that almost all neurotic symptoms can be extinguished by nonreinforcement, and that this process is seen in everyday life in the form of spontaneous remission.

After studying the therapeutic changes in children with behavior disorders, Rachman (1963) believes it possible that a third learning process, in addition to inhibition and extinction, may be involved in spontaneous improvements. This process, known as latent learning, may be responsible for spontaneous remissions in disorders which arise from the patient's failure to learn an adequate way of responding. Final proof of the value of the various learning theory approaches must be sought in future research.

Since some of the best known screening procedures for emotional disturbance are somewhat comparable to the one used in this survey, many of the children screened as emotionally disturbed using current procedures could be expected to improve without intervention. Therefore, it would seem advisable that modifications of the screening procedure plus other alternatives receive further experimentation. This would seem crucial if one is to expect information gained in future surveys to provide better guidance for school personnel in making and implementing plans for the persistent cases of emotional disturbance.

A major objective of future research should be a better understanding of the processes involved in the 70 percent improvement rate. There is some speculation but little research regarding background factors or experiences in the child's life that facilitate recovery without intervention. The persistence rate reported in this study should not be confused with persistence rates for profoundly disturbed children. It referred only to children who remained in regular classes of the public schools and did not include children exempt from school, in special schools or institutions, or children in special classes. While relatively rare psychotic children can be expected to have a higher persistence rate, it should be remembered that most emotionally disturbed children continue to remain in regular public school classrooms.

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## ABSTRACT

### THE EXPERIMENTAL ANALYSIS OF VOCATIONAL BEHAVIOR IN SEVERELY RETARDED MALES

by

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Working from a population of vocationally naive, severely retarded residential school patients, an attempt was made to program subjects on selected workshop tasks. Functional analyses were performed to specify stimulus and response components of the respective vocational environments. Variables identified through this procedure were then employed as the basis for experimental training programs which incorporated principles of shaping, operant discrimination, and chaining of responses.

A preliminary study was conducted in order to determine the response acquisition characteristics of a sample of ten subjects. Two experimental tasks were introduced, each requiring the acquisition of chain of over 100 complex response sequences. The resulting data showed that response acquisition was reflected in positively accelerated exponential curves. Acquisition rates were such that, on the average, subjects could perform the complex tasks reliably (without prompting) after six hours of training.

A second study was deisnged to evaluate the effects of schedules of social and extrinsic reinforcement in maintaining performance rates following training on the two tasks. Both nonscheduled social and carefully programed token reinforcement were shown to maintain performance rates of adequate levels, however, the latter produced more stable response characteristics.

A third experiment was conducted to study response characteristics and reconditioning following two month and 12 month intervals of no exposure to the experimental environment. There was essentially no loss in performance at the two month sampling. For the one year interval, the average number of response failures was 2.5, indicating that approximately 98 percent of the originally conditioned behavior sequences remained intact in the subjects' repertoire. Reconditioning of the few response failures occured rapidly.